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VETERINARY MEDICINE

MONADNOCK BLOCK
Chicago

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Veterinary Medicine

Vol. XVI NOVEMBER, 1921 Number 11

Internal Administration of Arsenic on Canker and Other Diseases of the Foot in Horses

By J. D. E. Holmes, M. A., D. Sc., M. R. C. V. S., Pusa, India

Imperial Bacteriologist, Muktesar Laboratory.

WHILE carrying out experiments with arsenious oxid in the curative treatment of surra in horses I had an opportunity of observing the effects of arsenic in certain other pathological conditions, especially that of canker of the foot.

The value of arsenic in veterinary practice, as a general tonic, is well known, and it is occasionally given to improve the coat and condition of horses. In all our experiments with surra, which extended to three hundred or more ponies and horses, this tonic effect of arsenic was most marked. Animals in the last stage of emaciation rapidly regained their strength and condition.

In these cases arsenic was administered in full sub-toxic doses, commencing at about 1 gram and gradually increasing to about 3 grams. Ten doses were given at an interval of one to two days between each two doses. In some instances subcutaneous injections of atoxyl were given alternately with the arsenic by mouth.

A full description of this method of treatment, by which we have cured many cases of surra in horses, has been previously published, and need not be further described here.

Canker of the Foot

Among a number of country-bred ponies, purchased for experimental work and which had been inoculated with surra and were under treatment with arsenic, one was observed to be suffering from canker of the off fore-foot. The disease was of long standing, the foot being deformed, the heels contracted and the sole covered with a spongy fungoid growth from which a foul odor emanated. The foot was dressed occasionally with tar as an antiseptic, during the time that the pony was undergoing his course of arsenic treatment for surra. The pony had a relapse after the first course of arsenic and received a second course of treatment which resulted in a cure. In all he received twenty doses of arsenic in bolus.

During the second course of treatment, my attention was drawn to the improvement which had taken place in the diseased foot. The fungoid growth had entirely disappeared, and a firm and healthy tissue covered the sole and frog. By the time that the second course of treatment was completed the foot was to all appearance normal; no pain or tenderness was evinced when pressure was applied to the sole and frog and the pony was going sound. This animal was kept under observation for twelve months and the foot remained in a healthy condition.

In order to ascertain how far in this case the disappearance of the disease was due to the administration of arsenic, I obtained at a later date three horses suffering from canker of the foot. Two were aged, country-bred horses from a native cavalry regiment. The disease was of some two years' standing and all four feet were badly affected. The feet were long and club-shaped and the sole and frog had been completely replaced by a fungoid growth, which bled on the slightest provocation. The horses were in pain and moved with difficulty on the toes of the feet. These two cases received three courses of arsenic and atoxyl during a period of six months. The doses were given on the same method as for the treatment of surra. Each course lasted about three weeks and consisted of five doses of arsenic in bolus and five subcutaneous injections of atoxyl. Between each course an interval of three to four weeks was allowed.

After the first course the condition of the feet showed a very marked improvement. The sole had assumed a healthy appearance; almost all the fungoid growth was gone and healthy tissue had taken its place.

After the second course of treatment the feet had returned to a quite normal condition. The disease had entirely disappeared, the sole was covered with hard and sound tissue and the frog and bars had grown into shape. The horses were able to put the feet to the ground without pain and walked sound.

The whole structure of the feet appeared normal and healthy with the exception of a small area in the sole in the near hind foot of one horse and in the off hind foot of the other. This area, which was about the size of a shilling, was less firm than the surrounding parts and, on pressure, pain was evinced.

A third course of treatment followed, after which no trace of any disease of the feet could be detected. The horses were kept under observation for twelve months. The feet remained healthy with the exception that in each case the area in the hind foot, which was the last to heal, again softened, and on cutting down it was found that a small amount of cankerous growth still remained.

These cases received no further treatment. The third horse was a waler from the artillery. The off fore-foot was extensively diseased, the other three only to a slight extent. He was given two courses of treatment with arsenic and atoxyl. The same rapid improvement in the feet followed and in about two months it was impossible to detect any abnormality or disease of the feet. The horse was going sound and was returned to duty.

I was informed, however, that this horse was again attacked with canker of the foot in the following year.

In none of these cases was local treatment resorted to, beyond the application of tar or other antiseptic dressing to the diseased feet.

It has not been possible to make any further experiments on this subject as other cases of canker have not been procurable up to the present.

These four cases have, however, been sufficient to demonstrate that the internal administration of arsenic in large doses at spaced intervals, either alone or in combination with subcutaneous injections of atoxyl, produces a very rapid and remarkable improvement in cases of canker of the foot.

All lesions of the disease disappear, and healthy tissue takes the place of the fungoid growth. The sole and frog become hard and to all outward appearance healthy, and the animal goes sound and is fit for work. The experiments have not been sufficient to discover if a permanent cure of the disease can be obtained by this treatment.

The combination of local treatment with the internal administration of arsenic would in all probability give more permanent results. The arsenic acts in the first place as a tonic and improves the general condition. It is also recognized that arsenic increases the proliferation of epithelial cells. The rapid formation of the new and healthy tissue, which gradually curtails and replaces the fungoid growth, is in response to this stimulus.

It is also possible that arsenic may have a direct action on the still unknown causal organism of canker.

Thrush, Sandcrack and Brittle Hoof

The same method of arsenic treatment has been tried with the most excellent results in other diseases of the feet, such as thrush, sandcrack, defective and brittle hoof, cracked heels, etc. In some cases the internal treatment alone has been relied on and in others it has been combined with local applications. In all cases a rapid improvement and cure have resulted. With the combined treatment the results were somewhat more rapidly obtained.

One case I may mention of a young horse which was incapable of being worked owing to defective fore-feet. The wall of the foot was not more than from two and a half to three inches in length; the edges were frayed and fissured upwards from a half to one inch. The soles of the feet was thin and the horse walked with great difficulty and pain. The application of blisters to the coronets had been tried but failed to produce much improvement in the condition of the wall of the feet.

The horse was put under a course of arsenic. After the first course the growth of the wall had considerably increased and was of more healthy texture. Two further courses of arsenic were given within three months, at which time the feet had grown to a normal size and a dense wall had formed, which showed no tendency to brittleness. The horse was shod and went sound.

The arsenic treatment was equally effective in the treatment of cases of mutiple melanosarcomata.

Goitre or Bronchocele

By E. L. Quitman, Chicago.

GOITRE is a chronic hypertrophy of the thyroid gland. It may either be a simple hyperplasia of the gland or it may be more or less a cystoid degeneration with the formation of cavernous cysts, filled with gelatinous contents, or it may be of a fibrous character united by connective tissue, or an enlargement of the veins, known as varicose goitre or there may be a cancerous degeneration of the gland, it also exists in a form known as exophthalmic goitre.

The simple hyperplasia and the fibrous form are by far the more common. Goitre in the dog is of very common occurrence and like the human being, it exists in certain districts more than in others.

In size, goitre may vary considerably, from the just perceptible enlargement to that of size of two fists or larger.

Etiology: The cause of goitre, in the writer's opinion, is a deficiency condition, either of intra- or extra-deficiency origin. When of extra-deficiency, it refers the cause to the patient's food, and means that the food is deficient in its normal iodin content. In dogs, we believe it is commonly, when not congenital, due to the delayed feeding of meat. A superstition exists in the minds of some of the laity that a dog should not have meat until it is six months, one year, or in some cases, even older, attributing all sorts of dire results to the feeding of meat, believing that it causes goitre; also that it causes mange and distemper; when in truth the canine should have meat just as soon as it is weaned. Dogs are carniverous animals.

We have noted in young puppies with goitre the retrogression and permanent cure of the goitre resulting from a meat diet.

Symptomatology: Goitre is easily diagnosed, as it may easily be felt in the region of the throat. However, large goitres, especially of the fibrous variety, by virtue of their weight commonly descend the neck until they lie at or near the base of the neck.

Cystic goitre may easily be differentiated from the hard type by palpation.

Goitres vary in their rapidity of development, and in their early stages. When small they rarely if ever cause any untoward symptoms, but as the patient grows older and the goitre enlarges, a chain of symptoms develops that seriously interferes with the welfare of the patient, and in fact with its life. Due to the size and consistency of the hard type of goitre, serious interference with respiration may result due in part to compression of the trachea and to pressure on the recurrent pharyngeal or the pneumogastric nerves. Likewise, serious circulatory disturbances may result from pressure upon the jugular vain and possibly, but less probable, pressure on the carotid artery, and later by serious cardiac hypertrophy. This condition also gives rise to respiratory difficulty or cardiac asthma.

The type of goitre known as exophthalmic goitre is of far more infrequent occurrence in the lower animals than in the human being. It is characterized by prominent bulging, staring appearance of the eyes, nervous phenomena such as muscular twitching of an intermittent and sometimes persistent character, circulatory disturbances especially a very rapid heart, increased peripheral pulsation of the blood vessels, vomiting spells, etc.

In the lower animals, goitre is most frequent in the dog, next in swine. It also exists fairly frequently among sheep and is of less frequency in horses and cattle. In the latter two species, it seems to rarely if ever cause any untoward symptoms. In swine, the condition has commonly been supposed to be of congenital origin, when in truth it is purely a deficiency condition, and this we think, proves the case in all animals, as it has been demonstrated that though pigs, new-born pigs, may have goitre, the fault has been a deficiency in the nutrition of the sow.

Treatment:—Iodin in some form is a "sine qua non" in the treatment of goitre. In dogs, iodid of potash, or iodid of soda may be used in from one to five grain doses for adult dogs, according to their size and proportionate doses for puppies, which however, should rarely exceed from one-fourth to one grain. Calcium iodid is also useful, but should be used in one-half the foregoing dosage. Same to be administered three times daily.

However, in canine practice, the writer has had uniformly good results from the administration of the dessicated thyroid gland given in the form of thyroid tablets which are marketed in one, two and five grain tablets. These

tablets naturally contain the essential thyroid secretion known as thyroiodin, also known as iodothyrin.

The tablets are administered in one to five grain doses, three times daily, according to the age and size of the dog. Usually two or three grains of the tablet is sufficient. Dogs will eat them from the hand or when mixed with food. In dogs under one year old, the goitre usually yields to treatment in from two to six weeks. In dogs from one to two years old, from four to eight weeks' treatment is required, and dogs from seven to ten or twelve years old, the client must be impressed with the fact that three or four months and maybe longer will be required for recovery.

Usually in from four to six days after the start of the thyroid tablet treatment, the goitre will seem to be enlarged, but at the same time it will be noted that it is softer. This may be looked upon as a favorable symptom, but it is well to mention this fact to one's clients at the time of prescribing treatment, otherwise they are apt to think the medicine is making the patient worse.

Local applications of iodin either as an ointment or as a tincture, or mercurial ointment do not seem to be of any material value in dogs.

In prescribing the proper dose, one should endeavor to give as large a dose as possible, yet avoiding the symptoms of hyperthyroidism which will be evidenced by circulatory disturbances, vomiting, heart and respiratory excitement, staggering and perhaps fainting spells. This condition if induced is not dangerous and merely calls for a cessation of the treatment for three or four days, and its resumption at the end of that time with smaller dosage.

The diet of the dog should consist of meat in liberal allowances, oatmeal, unpolished rice and other cereals unrefined, such as whole wheat, cooked up with the meat and any vegetables that the animal may eat.

Iodid of potash in two-dram doses for horses weighing 1250 to 1400 pounds, and for 1400 to 1600 pound horses, two and one-half to three dram doses three times daily. Calcium iodid in one-half dram doses, substituted for the iodid of potash also gives good results.

In horses we find inunction twice daily with mercurial ointment aids in reducing the enlarged thyroid gland.

For cattle, the same treatment as for horses, but half the dosage.

Sheep should receive one-fourth or one-fifth the dosage given for cattle.

Goitre in newly born pigs or hairless pigs may be prevented by giving the sow from one to three grain doses of iodid of potash daily during pregnancy. It may be administered in the feed.

For the pigs born with goitre or developing it soon after birth small doses of iodid of potash or other iodides should be administered. It is probable that thyroid tablets would also be efficacious and safer. However, the former is cheaper.

In the treatment of cystic goitre, if the cysts are small, the fluid will occasionally become absorbed under the use of the iodids mentioned in the foregoing. The thyroid gland tablets do not seem to have the property of promoting the absorption of this fluid. Thus, we would suggest putting a patient with cystic goitre in which the cysts are small, on iodid of potash, iodid of soda or calcium iodid for perhaps two or three weeks or longer if the fluid is being absorbed, and when absorption of the cystic contents is completed, then the patient may be switched to the thyroid tablet treatment.

If the cysts are large, they should be opened, drained and swabbed out with full strength tincture of iodin. It is perhaps needless to remind the readers that the thyroid gland is plentifully supplied with blood. The blood vessels are large and under the hypertrophy of the gland some of the blood vessels commonly become varicose. Consequently, considerable caution must be manifested in cutting into the gland. In some cases, the fluid may be withdrawn by means of a trocar. The latter being necessary, due to the fact that the fluid is usually too viscid to be withdrawn through a hypodermic needle.

After aspiration, Lugol's solution may be injected to the total extent of one dram.

In finishing, we wish to impress on the reader the necessity in order to maintain the recovery, of administering iodin or in the dog, the thyroid tablet, in the above mentioned doses about two or three times a week to insure against the return of the goitre.

While this bi- or tri-weekly administration should be continued as long as the patient lives, I have known of many cases in the dog where it was continued for six months, or a year after complete recovery from the goitre, then discontinued without a return of the ailment if the patient was on a proper diet.

The Spell of the Curandeiro

By W. G. Smillie, M. D., Sao Paulo, Brazil, Member of the Rockefeller Commission

IN Brazil the curandeiro is omnipresent, the archenemy of modern therapeutics and the greatest single source of opposition to the extension of the Board's field work. Whenever treatment is refused by a large group of people, whenever the nurses are met by closed doors and scowling faces, and especially whenever there are wild rumors afloat that the strange foreign doctors are poisoning everyone, or that they have treated and completely paralized a man and three children in the next county, nearly always the disturbances can be traced to the local curandeiro—a man part herb doctor and part sorcerer.

In one village the writer had assembled a large number of persons in the back room of a shop for the purpose of conducting a series of hemoglobin examinations. The work was progressing swimmingly and each member of the crowd was eagerly awaiting his turn to have a blood test made. Suddenly, the room emptied. Not a patient remained, nor could any be induced to return. The store-keeper finally explained the exodus. He said that the local curandeiro had seen the crowd and had come over to find out what it was all about.

Not Willing to Be Sold to the Devil.

"A foreign doctor is testing everybody's blood."

"For nothing?"

"Yes, doesn't cost a cent."

"But he is working for some one, isn't he? Some one must pay him. What does he look like?"

"He has a black pointed beard, wears big black spectacles, and has a very queer accent."

"And what does he do?"

"He takes a drop of blood and examines it in a black machine in a dark room."

"Well, you poor idiots and fools, don't you know who that is? Do you think he works for nothing? He is paid and well. He is a representative of the devil, and is examining your blood in order that he may be able to sell your souls to his satanic majesty."

Needless to say, the work stopped in that community for the time being.

A Paradise for Quacks.

The number of these quack doctors is legion. They are not limited to the isolated districts, but are found even in the large cities. Only recently there appeared in a daily paper a full page article in regard to a very famous curandeiro who lives in one of the suburbs of Sao Paulo, and has many wealthy persons among his patients. The police are fairly active in the large cities, however; but there is not a village in the interior without its curandeiro, man or woman, and many of the larger plantations also have some one who practices the healing art.

One finds all gradations of curandeiros in Brazil. The simplest type is the one which sells prayers. The prayers usually consist of a few short sentences, written on a piece of paper. These are folded, and applied to the diseased part of the body. Upon the illiterate among the population these curious, unintelligible ink marks on paper have a powerful effect. Each disease has its own prayer, and each group of diseases its saint.

A Snake-Bite Specialist.

Another fine old gentleman of Brazil specializes in curing only snake bite. He is sub-overseer on a coffee fazenda and he has absolute confidence in his own ability, a supernatural power which he discovered accidentally when he was about thirty-five years old. He has the respect and credence of the entire community for many miles around, both field laborers and plantation owners.

One day there came a telephone call from a plantation owner twelve miles away, saying that one of his men had been bitten on the leg by a rattlesnake. A messenger was sent to the fields at once for the snake-bite doctor, who came to the phone, asked for the full name of the young man who had been bitten, his age, where he was bitten, and if they were sure of the type of snake. All questions being answered, he telephoned that it was not necessary for the young man to come to see him; the unfortunate victim need only drink a cup of cold spring water at once, and in a short time all would be well. The old gentleman forthwith retired to a corner and said his prayer, drank a glass of cold spring water, and the cure was effected. The young man did not die, at any rate. Many a famous New York surgeon has

had an equally gratifying success to which he can point with pride.

Chenopodium a Vermifuge in High Repute.

The herb doctors have a great variety of very powerful purges. Their emetics are also most efficient, as are their counter-irritants and blisters; and they have many bitter concoctions to increase the appetite, together with many other drugs of real value in symptomatic treatment. Their universal vermifuge is "Santa Maria," the local name for chenopodium, which grows in profusion throughout the land. They gather a great armful of the plant, pound and smash it down in the big wooden mortar that they use to clean rice, and the resulting fluid is diluted with about a pint of water. This awful mess the child must drink. It is quite effective in removing ascaris.

A "Stone Breaker" for Calculi.

Besides the effective remedies there are a host for which specific powers are claimed but which are really without physiological effect. One common and very pretty plant is called "quebra pedra," or stone breaker; this, when given in infusion, is said to be absolutely specific in breaking up and dissolving urinary calculi. Another pseudo-remedy is the "Hair Ball," which is said to be found in the stomach of a very ugly and cross bull. This is a round, smooth ball, made entirely of hair, which the animal has swallowed when cleaning himself with his tongue. Besides being a very lucky thing to have in the house, the ball is considered of great aid in childbirth. A small portion of the ball is scraped off and given in hot water.

The "Conja" Doctor.

A third and entirely different type of curandeiro is the witch doctor. This type prevails among the negroes, and the true significance of many of his symbols and the ramifications and interweavings of the tangled skein of his system of therapy is indeed difficult to understand. It is so mixed with religious and social customs, with jealousy, covetousness, passion, and even crime, that it is impossible to acquire more than an inkling of the art. Much of it must have been brought to Brazil from Africa by the slaves. One of the important foundations upon which the system is built is the existence of the EVIL EYE. The possession of the evil eye is not a person's fault, but his terrible affliction, and he is often shunned like a leper. Some well know that they have this terrible power, and are said to use it to the discomfort and even to the ruin and destruction of their enemies. People with this power need only to look upon an infant, and the child will sicken and die. An older child must be looked at steadily for some moments, and adults vary in their resistance, some being entirely immune. People who possess this power can look over a fence for a few moments at a flourishing crop, and in a few days the fine corn or rice will wither and dry up. One of the great tasks of the witch doctor is to provide talismans to prevent the grave effects of the evil eye. Staff members will have a fellow feeling for the witch doctor, for his work is of a preventive rather than of a curative nature.

The Powerful Therapy of 'Gator Teeth.

The witch doctors have a great variety of talismans, most of which are to be worn with a cord about the neck. The most powerful of these is the alligator's tooth; then comes the "figa," a carved image of the human forearm, with the fist clenched and the thumb between the first and second finger. There are in addition a carved cross made from the root of a certain tree, a tip of a lamb's horn carefully polished, a very pretty red and black seed called the "witch's eye," and many others. The only means of protecting a crop of grain against the evil eye is to place in the field, near the fence, a skull of an ox mounted on a six foot pole; and in the interior of Brazil there are few fields of grain, or even gardens, without their ox-skull guardians.

Sorcery for a Price.

More sinister even than the evil eye is sorcery. There exists a group of people in Brazil, usually old, and usually black, who have the power of bringing harm upon others. Therefore, if a man has an enemy he can hire a sorcerer to bring disaster upon that enemy in any desired form, even to producing sickness which will cause death. The price of service is in proportion to the harm to be inflicted. If the enemy desires to have the evil spirit removed, this also can be accomplished for a suitable payment. If a young man's love is unrequited, the sorcerer can arrange everything satisfactorily. The abuses to which this system may lead are obvious. The sorcerers are cunning, resourceful, quick-witted, and courageous, as indeed they must be, for theirs is a dangerous profession.—The Brazilian American.

The Veterinary Supply House

By E. T. Baker, Moscow, Idaho

Those of us who have graduated within the past ten or fifteen years have seen some wonderful changes, such as the rise of automobiles, prohibition and veterinary supply houses. That the latter have proven to be a much-needed adjunct to the veterinary profession is shown by their rapid increase and apparent prosperity.

Ten years ago the harassed practitioner timidly wrote his order for some special instrument, pharmaceutical or biologic preparation. Then he awaited an answer from some manager not a veterinarian, absolutely devoid of a sympathetic understanding of his needs. In a few obscure pages in a large catalog for physicians and dentists would be found "Veterinary Preparations." There were a few, but mighty few, large firms shrewd enough to employ a practical veterinarian to be in charge of this department, and to build up a business. This certainly was overlooking a large field, for as a druggist once remarked to the writer: "I would rather have the trade of one live veterinary surgeon than a half dozen physicians." This is due to many things. In the first place, the amount of medicine given to one horse or cow is more than given to a dozen people or forty children. In the second place, the veterinarian must carry his drugs and supplies to the case, and what is not administered by himself is left with the owner by him. There are so many emergency cases, such as colicky horses, bloated cows, acute febrile infections, that no time can be given to writing prescriptions or sending to the drug stores to have them filled. Thirdly, he often uses more biologics and surgical supplies in a week than a dozen physicians would use in a year. It is only by the continual use of immunizing agents that animal panzootics are kept down, while in man most epidemics run a course, such as the "flu," and then subside.

Roughly estimating there are some 15,000 practicing veterinarians and each one averages a thousand calls a year, at $5.00 a call, it can be seen that a $75,000,000 business is being conducted. This does not include office calls, special surgery, etc., so that our business may be said to run around a hundred million dollars a year. It would be interesting to know just what the exact figures amount to, and how many doses of biologics are used annually by these 15,000 veterinarians. Besides drugs and vaccines, are books, instruments, supplies, and the wastage of these are something stupendous, for something is "breaking" all the time. Sometimes the veterinarian himself is "broke."

On account of the nature of his profession he usually cannot go dressed in the height of fashion, for just about the time he gets ready to attend lodge or some other occasion, a hurry-up call comes in to act as midwife to a sow or to relieve the convulsions of a poisoned pup. But the average practitioner will be found to have a pretty good car, a substantial home, if he has taken care of his money, devoid of much debts. However, it is a curious thing that professional men, such as physicians and veterinarians, are the easiest marks in the world to sell oil stock and every other kind of wild cat stuff to.

Not many years ago it was considered unpardonable for a college professor to recommend any one drug, biologic, instrument or book as superior to others of its kind. The students, therefore, fell easy prey to smooth talking salesmen and spent hard earned cash purchasing trick instruments, "phony" drug specialties and other clap-trap made only to sell. The writer still has some of these mementoes of a salad past that he will dispose of at a real sacrifice. He would prefer sell them to an entire stranger, particularly to a practicing county agent! How many of us who have studied Williams' "Obstetrics" have not thanked that sterling gentleman for warning us to beware of jointed obstetrical instruments? It was only by associating with older heads that we learned of real, practical instruments. We always had trouble with floats until we came across Haussman & Dunn's, and the emasculator made by that firm gives confidence to the operator. Sharp & Smith made for the writer a solid metal syringe of 2 cc. capacity that has probably made over 60,000 "shots" and still is as good as ever. Other houses make certain instruments superior to all others, and by judicious selection, for little money, the practitioner can be well fitted out.

Comes now the veterinary supply house to make its bow. Organized and conducted by practical veterinarians who had been through the practice mill, they culled the best from the various firms, correlated them under one little catalog, and included some specialties that would work. On receipt of this little booklet the practitioner saw at a glance here was a catalog worth while for something other than shaving paper. He laid it down and said:

"Those fellows know what they are talking about!"

A new era had opened, and the old line house which merely considered its veterinary department as a sort of appendage, lost a glorious opportunity. Then again your old practitioner had some scores to settle with some of these houses who had used every farm paper to advertise their wares and who sold to the farmer direct.

The modern supply house may be termed the munitions shop behind the lines. Through competition, scientific research and practical experimentation new and better lines of treatment are being continually evolved. This gives the practitioner better and more effective ammunition. Examples of this may be seen in the line of bovine purgatives. Ten years ago these were given by the bucketful and the majority of cases died getting well. Today, one crushes a few tablets in a pint of water and secures results that satisfy. One firm introduces sterile camphorated oil, which has proven a veritable sheet anchor, and another firm comes along and improves even on this time-tried and tested drug. Who would go back to creolin and lysol and carbolic acid for removing placentae when agreeable aromatic antiseptics are to be had? Can you mix up sticky boluses and administer them as easily as the ready-made capsules? In other words, these supply houses keep improving on our treatment and giving us the finished article in a more elegant form than we can prepare them ourselves.

Another thing, these houses keep a well-trained bacteriological department, and when we are puzzled in the field, we can send in specimens for further examination. Only the practitioner who is up against some epizootic that he is not just exactly sure of appreciates this help. Then again, he receives letters of explanation written by veterinarians who often can suggest a line of treatment that proves successful. He becomes a better veterinarian for these little lifts along the road, and his practice widens accordingly.

Like everything good—like anti-hog cholera serum plants, for example—the new supply houses are springing up like home breweries. This is unfortunate, for ten or a dozen well-equipped firms can serve our profession better than a hundred runty ones.

There is one feature the new supply house should not stress too much upon, and that is the standard drugs such as are carried in every country drug store. Unless his local druggist is a regular profiteer the practitioner should buy these from him. The friendship of the druggist means much to the veterinarian, and when there are more than one in a town, each will have his special clientele. Suppose you can send away and save a few dollars on an order of common drugs, who tells your prospective client where "Doc" is and when he may be expected back? Who furnished a warm place in winter to pass some spare hours advising President Harding how to run the country, and who supplies a cool retreat in summer? Patronize your home druggist just as much as you can for there will be plenty trade left for the supply house. Last year in our town the druggists chipped in $25.00 apiece to help pay the salary of the county agent. Last winter, to show his gratitude to these perpetual grafted-upon, bald-headed but good-hearted druggists, our county agent sent back East for a large supply of strychnin, used out here for poisoning ground squirrels. The druggists loaded upon it as usual at a high wholesale price, when the county agent, using every line of available publicity, gives out the price he paid. Of course, this killed the business for the druggist, and the county agent deserves the plaudits of a grateful bunch of ranchers who possibly saved as high as ten or fifteen cents apiece during the season. And then the agent advises all to patronize "home industry." It almost makes the writer cry when he states this solemn fact: Such official actions are resulting in fewer county agents in these parts each year!

The great field of the supply houses at present is biologics, specialties and instruments. Instead of every fool instrument made is found a list of only those useful and practical. The best houses are selling to the veterinarian only, which is a protection appreciated by every one in the profession.

Milk and Meat in the Food Supply

RECENT studies in nutrition have made clearer the importance of the mineral elements and the vitamines in the diet. In a recent report the committee on food and nutrition of the national research council discusses this matter, together with the question of the relative efficiency of the milk cow and the beef animal (in the production of milk and meat) in the conservation of proteins, fats, and carbohydrates and in the gathering and preparation of mineral elements and vitamines.

The following is contained in the report of the committee:

It has long been known, but perhaps never sufficiently emphasized, that the milk cow returns in the human food which she yields a very much larger share of the protein and energy of the food she consumes than does the beef animal. Dr. Armsby, probably the leading expert of this country on animal nutrition, has estimated (Science, Aug. 17, 1917) that of the energy of grain used in feeding the animal there is recovered for human consumption about 18 per cent in milk and only about three and one-half per cent in beef.

In an official report on the food supply of the United Kingdom it is estimated that to produce 100 calories of human food in the form of milk from a good cow required animal food of 2.9 pounds starch equivalent; 100 calories of milk from a poor cow is estimated to require the consumption of 4.7 pounds; while to produce 100 calories of beef from a steer two and one-half years old it is estimated that nine pounds of starch equivalent in feed are required.

Stated in terms comparable with those used by Dr. Armsby, this would mean that the good milk cow returns 20 per cent of the energy value of what she consumes, the poor milk cow 12 per cent, and the good beef steer only six per cent. Although this estimate is more favorable to the beef steer than is that of Dr. Armsby, yet even in this estimate it will be seen that the poor cow is twice as efficient and the good milk cow more than three times as efficient as the beef steer in the conservation of energy in the food supply.

Considering the whole length of life of the animal, Prof. Wood, the leading English agricultural expert, estimates that the cow returns in milk, veal, and beef one-twelfth as much food as she has consumed, while the beef steer returns only one sixty-fourth. In other words, the cow is five times as efficient as the beef steer as a food producer when the whole life cycle of the animal is considered. Similarly it has been estimated by Cooper and Spillman (Farmers' Bulletin, No. 877, 1917, U. S. Department of Agriculture) that the crops grown on a given area may be expected to yield from four to five times as much protein and energy for human consumption when fed to dairy cows as when used for beef production. As Wood has very strikingly shown, the longer the time that the beef animals are fattened on grain the less economical the process becomes.

Quite recently Dr. Armsby has pointed out (Yale Review, January, 1920) that "the dairy cow shows the highest efficiency of any domestic animal, both as regards conversion of food and availability of the product for man."

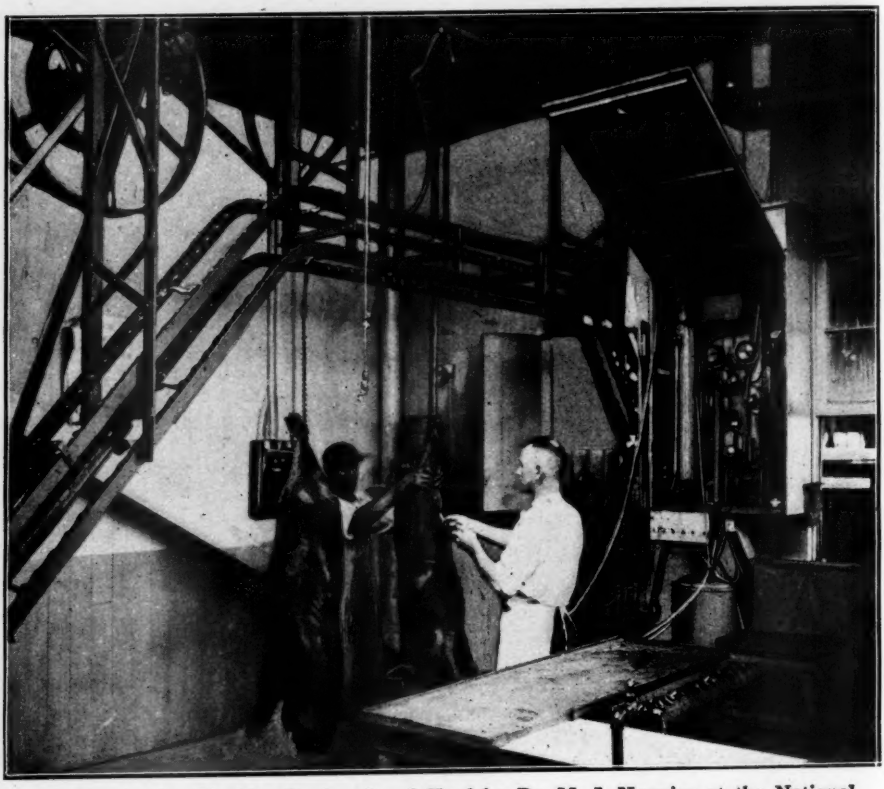
Not only is the milk cow several times more efficient than the beef steer in the conservation of proteins, fats, and carbohydrates for human consumption, but in the gathering and preparation of mineral elements and vitamines she contrasts even more favorably with the beef animal. It is largely because of its richness in calcium and in fat-soluble vitamine that milk is the most efficient nutritional supplement to bread or other grain products.

Meat is strikingly poor in calcium and does relatively little to balance a diet consisting largely of bread or of other products of seeds. It does, of course, supplement the protein, but American dietaries would nearly always be adequate as regards protein even without the meat that they contain. On the other hand, dietaries containing little or no milk are very apt to be inadequate as regards calcium. Detailed analysis of the results of hundreds of American dietary studies shows that in practice the adequacy of the calcium intake depends more largely on the sufficiency of milk supply than upon any other factor, or, in fact, than upon all other factors combined.

The vitamines furnished by hay and grains, and thus consumed by cattle, are stored in the animal's tissues to only a limited extent, but they are transferred in relative abundance to the milk. Hence the vitamines of the coarse material of grain not directly available as human food are brought into form for man's use very efficiently through milk production and very inefficiently through the production of meat.

Thus, the result of recent studies in nutrition, which have made clearer the importance of the mineral elements and vitamines, is to emphasize strongly the great desirability of a more abundant milk supply, even if this should somewhat reduce the production and consumption of meat. Our present knowledge of nutrition justifies more fully than ever before the statement that "the dietary should be built around bread and milk," bread or other grain products being the foods which furnish the most nutriment for their cost (whether in money or in land and labor), and milk being by far the most efficient nutritional supplement to bread or other grain products. Therefore, somewhat more of our grain crops than is the case at present should come directly into human consumption to augment the bread supply; and of the grain fed to cattle more should be used for the production of milk and less for the production of meat.

In general, 10 pounds of grain may be expected to produce not over one pound of meat or about three quarts of milk. If the three quarts of milk cost the consumer more (because of greater labor cost in production), they are also certainly worth more to him. In so far as things as different in their nutritional properties as meat and milk can be compared, it is fair to say that one quart of milk is at least as great an asset in the family dietary as is one pound of meat. The per capita consumption of meat in the United States is so high that it might be reduced by one-third or even one-half with little or no nutritional loss, while a corresponding increase in milk consumption would certainly constitute a great improvement in the average American dietary. —Public Health Report.



Hog Vaccination Machine Designed and Used by Dr. M. J. Huggins at the National Stock Yards.

Stocker and Feeder Hogs

By M. J. Huggins, D.V.M., East St. Louis, Ill.

THERE has been an increasing demand for stocker and feeder hogs for the last several years which is, no doubt, due to the value of the land in the corn belt for purposes of raising grain instead of breeding any great number of hogs. There are certain sections of the United States which are not adapted to the raising of grain in a profitable way, but are naturally adapted for the production of pigs until they are the age and size which are sought for stocking and feeding purposes. In years gone by some of the corn belt farmers made a practice of going to these sections and buying such pigs, then shipping them home to their feed lots, but as this has proved unsatisfactory in a great many instances as well as expensive, it created a desire on the part of the farmer buying such animals to obtain this class of pigs out of public stock yards. Not until July 1st of 1914 did the U. S. B. A. I. allow any swine which had entered a public market to be removed for anything but immediate slaughter. By July 1st of 1914 the U. S. B. A. I. had developed and proven the efficiency of anti-hog cholera serum in curtailing hog cholera. Then they changed their regulations so that if hogs of this class were handled, inspected and vaccinated strictly according to such regulations they would be permitted to go interstate for stocking and feeding purposes.

In the stock yards, the government veterinarian who has charge of the stocker and feeder hog business reads and registers the temperature of every hog, and every animal which shows a temperature of 104° or more is rejected and not allowed to be vaccinated or shipped, also if 15 per cent or more of the consignment show temperatures of 104° or more the whole consignment is rejected and not allowed to be treated or shipped. The government veterinarian also rejects any animal showing any other physical condition that he thinks would render it unfit for stocker and feeder purposes. After the animals have been inspected and passed by the veterinarian, they are vaccinated by a veterinarian in the employ of the yard company, and under the direct supervision of the government veterinarian. No serum is used but what is inspected and approved by the government. The animals receive approximately ½ c.c. of serum for each pound of body weight and each animal receives 2 c.c. of hog cholera virus, resulting in splendid service in protection of the feeder hog buyer.

We have found that by injecting the serum into the peritoneal cavity in the triangular space just in front of the pelvis and just back of where the small intestines lie we eliminate the severe soreness which we had to contend with when injecting the serum into the muscles. We also find that when serum is injected into this cavity, the absorption of the serum is almost immediate, which is not the case when we vaccinate into the muscles, the serum which has been injected lies there for various number of days before it is finally absorbed.

By injecting the serum into the intraperitoneal cavity, we have practically no abscesses following vaccination, which is a beneficial factor to the parties slaughtering the hogs. Whereas in a great many hogs that have been vaccinated into the muscles, no abscess may show on the surface and the hog may be slaughtered, dressed and cut up and still not be detected, but when the ham has been sold to the consumer and is being cut up to be served, the abscess is detected with the result that the consumer can not understand why the inspectors in the packing house fail to detect the condition. Intraperitoneal vaccination eliminates such abscesses.

After proving to our satisfaction by dividing a group of hogs into two groups, and using the intra-muscular method on one group and the intraperitoneal method on the other group and demonstrated that the hogs which were vaccinated by the intraperitoneal method did much better immediately following vaccination than the ones which were vaccinated into the muscles, we decided to adopt the intraperitoneal method in vaccinating all stock hogs in the National Stock Yards, except the sows which are in the advanced stage of pregnancy.

In order that the intraperitoneal vaccination should be done properly, the hog should be suspended by the hind feet with his head down which allows the internal organs to gravitate to a position which will simplify the operation, and empty the cavity into which the serum goes. We have devised and erected a machine for this purpose, the machine is made with an endless chain, the men shackle the hogs by both hind feet and hook them onto the endless

chain which gradually elevates the hog and carries him to the veterinarian doing the vaccinating, and he injects the serum into the cavity from an enclosed and clean container through a rubber tube into the cavity also injects the virus from a similar container through a rubber tube into the flank while the animal is being conveyed to the other end of the machine and then when his feet are placed on the ground, he is automatically released and walks away. We are convinced that from all angles, this is the most humane method as well as the most efficient of any used to date.

After the stock hogs are vaccinated, they are driven into an enclosure made for the purpose of spraying them with a disinfectant prescribed by the government. This arrangement is so that an entire load is sprayed at one time. In the cool weather and wintertime this disinfecting solution is heated to body temperature by steam which is forced through the pipes into the tank of disinfectant, by this method the hogs are not chilled by the solution. After being sprayed with the disinfectant, the hogs are placed in enclosed pens with the very best drainage into a sewer and in the cool weather and winter time is heavily bedded with straw. These pens are also equipped with clean troughs and flowing water which is one of the most essential things to the welfare of a freshly vaccinated hog. When these hogs have thoroughly dried and time for shipment comes, they are driven directly from the pens into the clean and disinfected cars. It is very important that stock hogs which are being shipped during the winter months should be protected against the cold and damp weather while in transit, and in order to do this, the car should be well bedded with straw and lined with building paper at least half way up, and all four sides of the car, this really is an important matter due to the fact, that some of these hogs may have come from a warmer climate, and in fact experience proves to us that this is a paying investment for the man buying the hogs.

During hot weather stocker hogs should have access to water while in transit, and should have a trough placed in the car at time of loading and filled with water. In some instances, in excessively hot weather, we find it advisable to spray the hogs with water after being loaded.

Immediately after stock hogs have arrived at destination, they should be unloaded into a sheltered pen, and allowed to rest as well as given fresh water. By all means hogs which have recently been vaccinated should not be driven, due to the fact that the injection of serum and virus usually causes some disturbance and being as the hog is not naturally adapted to traveling very far, the exertion caused by driving at this time producing very marked exhaustion and many times causes lung involvement. This does not only apply to hogs, which have been shipped on the railroad, but is also the case where hogs have recently been vaccinated on their native farm, then driven some distance. After such animals have arrived at the farm on which they are to be fed, they should have dry and warm quarters, and by all means should not be placed in a wet, muddy feed lot, and allowed to sleep or lie in wet or damp bedding. We must bear in mind that these animals have been removed from their native pastures and surroundings and they must have the best of care at least until they become acclimated. Hogs which have recently been vaccinated should be fed very lightly and watered very liberally, as exhaustion of hogs has the tendency to predispose the animals to various forms of lung trouble such as infectous pneumonia, hemorrhagic septicemia.

If any of the animals show symptoms of lung trouble such as coughing and a spasmodic thumping of the flanks they should be separated from the rest of the lot and put into dry and comfortable quarters, also they should receive a double dose of mixed infection bacterin which has been produced by a reputable laboratory, and this should not be delayed, any animals which do not improve after two days time, should receive another dose of bacterin.

We have some customers which regularly come to this market and buy stocker and feeder hogs and insist that their hogs be treated with bacterin at the same time they are vaccinated with the serum and virus. They immediately after arrival at destination treat them with another dose of bacterin and follow up the treatment on those that show indications of lung involvement. In this manner they are overcoming losses due to lung infections produced by exhaustion following shipment.

There is no doubt but what the success of handling vaccinated stocker and feeder hogs is based upon a good understanding of how to handle them after arriving at destination.

Live Stock Poisoning

Edited by L. H. PAMMEL, Ph. D.
Professor of Botany, Iowa State College, Ames, Ia.

Western Poison Cowbane

Dr. J. N. Medell of Jarno, Colorado, sends the following letter in regard to poisoning from the western poison cowbane or musquash root (Cicuta occidentalis). Only the roots were sent, and it may be the same as we have in Iowa.

"I am sending you by separate mail some plants or weed. I wish you would take it to the best botanist or chemist of your institution and have him tell me what it is. It grows along irrigation ditches and is up about two inches now. In the summer has a stem about 4 feet high, with first a white flower on it, then afterwards seeds like the carraway; only one stem to a plant. I am sending a part of a stem and a whole plant, as it was dug up the other day.

"Three boys were playing back of the house on Saturday, April 30th, one boy five years of age and the other two, three years each. They were neighbor boys in the village of Castilla, New Mexico, four miles from me. The ditch runs through the back yard. The boys ate some of the tops of this plant (not the root). They were called into dinner a short time after. The two boys belonging to the one family went in, sat down at the table and were almost finished with their dinner when both got sick and started to vomit, one of them being only sick and vomiting, the other took convulsions at once. I saw them in an hour from that time and one of them had convulsions every few minutes. I treated him and he recovered in about an hour. (They are Mexican people.) The third boy went to his home and as soon as he got in the door took a convulsion and fell on the floor. He had several convulsions before I got there and was dead before I saw him.

"I want to know the English name of the plant and the properties it contains to do all this. The Mexicans call the plant 'Peco' but I can't find it in the Spanish-American dictionary. It is a very poisonous plant and is said to resemble two more when they are all young. They have a story of a man who thought he was eating of the others, and did not know the difference until he took a convulsion and died. That was 18 years ago. A woman who ate of it lived just long enough to get to her house, and that was also years ago.

"Please find out all about the plant for me and let me know the result."

This species is very poisonous, especially in the fall, winter and spring. The plant produces fascicled roots, large pinnately compound leaves and numerous small white flowers arranged in an umbel. The root has a somewhat sweetish taste. It is a very poisonous plant. The chemistry of the poison is not well understood. Some chemists have described the small amount of alkaloid as similar to one found in the poison hemlock, known as coniin. They have also recognized certain toxins, one is the cicutoxin. In all probability the poisoning is produced by this substance. The symptoms of poisoning are as follows as determined by an experiment made in Oregon: A bulb was cut in small pieces, mixed with a carrot and fed to a two-year-old grade heifer. The animal was fed at 8:00 a. m. and at 9:30 it was dead. A post-mortem examination showed the pieces of the root occurred in the rumen, and in the reticulum or second stomach. Only a small portion of the root had been eaten by the animal. Two grams were found in the stomach. The lungs were highly congested. The following day, a one-year-old calf was fed with the poisonous roots. The temperature of the animal was normal, 102½° F. Two bulbs the size of an egg were cut and mixed with carrots; this material was eaten under protest. The roots were fed at 9:15 a. m. and at 9:40 the temperature was 103°, at 10:00 103½°, at 10:25 104°, and the animal was trembling about the flands, the eyes watered freely; at 10:35 the animal was excited and the temperature was 104¼° F.; at 10:45 the animal fell over on its side in a spasm. The eyes were drawn and the muscles were rigid and contracted violently.

In man profuse sweat and convulsive agitations occur consisting of tremors, violent contractions and distortions with alternate and imperfect relaxatious mobility of the eyeballs, widely dilated pupils, frothing at the mouth and throat, sometimes violent epilepsy.

RUSH

Dr. Harry Evenson of Sacred Heart, Minnesota, sends the following letter:

I am sending you under separate cover some rushes taken from a slough, some fresh green ones and some brown, dried ones from last year's growth, with flowers or seed tops. I would like to know if they could possibly poison cows that would eat a considerable quantity of them, probably more tops than stalks. Would the older ones from last year be injurious? We have had a very dry summer so sloughs are very stagnant. Posted a cow that died very suddenly yesterday and couldn't find anything abnormal only that she had been eating a large amount of these rushes. They were found in front end of the rumen, apparently the remainder of the elementary tract was o. k. There were no signs of inflammation or other disturbance of any kind.

I hardly think the rush is injurious. So far as I know no reports have ever been made that it is injurious to live stock. Rushes are plants of the sedge family. These plants are often eaten by live stock. I wonder if the water where the plants occurred is not stagnant. I suspect the trouble may have been caused from drinking stagnant water, but it is only a surmise.

OLEANDER POISONING

A horse was suddenly taken ill, and seemed "as if he was silly," according to the owner. He lay with watering eyes and elevated nostrils on his right side, groaned aloud, and fixed himself with his head and all four limbs against the wall of the stable. The region of the lips was covered with foam. The heart beat was strong and thumping and audible at a distance. During an interval of a few minutes the horse drew his legs up spasmodically to his belly, and groaned louder with pain.

The animal had been quite well all day and eaten his accustomed ration. An hour before the attack he had come running into the yard to the kitchen door, and had taken a piece of sugar from the servant maid. In a corner of the yard three large oleanders grew. From two of them the tops and a part of the leaves were eaten away. Diagnosis was consequently confirmed. With great trouble the horse was given 50 grm. of rape oil. Half an hour after it was fairly quiet. On the next morning it lay incessantly, but was quiet and listless, and voided some dark-colored dung. Temperature 38.9° C.; pulse 36; respirations 16. Treatment: one digestive powder morning and evening as well as oat gruel. In the course of the day he stood twice, but soon lay down again. He drank a bucketful of gruel Temperature 39.20° C. One acetanilid powder. On the next morning he stood up appeared livelier, and picked at his straw bed. Temperature 38.5° C. For two days he received sloppy bran and then his ordinary food. —H. Behrens in Deutsche tierarzt. Woch.

POISONING BY HYDROCYANIC ACID GAS

S. W. Lambert calls attention to poisoning from hydrocyanic gas[1] to an Italian disinfector. He was found unconscious in a room filled with hydrocyanic acid gas. The immediate symptoms were stertorous breathing, flushed skin, engorged and red veins, contracted pupils and rigid muscles; later free sweating and muscular twitching. The man lived for sixteen days after poisoning, showed rigid muscles, occasional convulsions, sweating, fever, tremor, ataxia and aphasia. Autopsy showed nephritis, adherent meninges and small multiple hemorrhages.

WHORLED MILKWEED

Mr. C. L. Goodrich of Madrid, Iowa, sends a specimen of whorled milkweed (Asclepias verticillata) with following communication:

"I am sending you under separate cover a weed for identification. I think the seed was dropped in my lot by a threshing outfit. I notice it is spreading and stock do not seem to like it."

I have commented on whorled milkweed in a previous number of VETERINARY MEDICINE. Dwight Marsh and A. B. Clawson find that the western Asclepias pumila and A. galioides and A. verticillata var geyeri are poisonous.[2] The A. pumila is about one-third as poisonous as the A. verticillata var geyeri which occurs at Missouri Valley, Iowa. The material used in experiments conducted by Marsh and Clawson was collected in June, 1919, at Missouri Valley. The animals show staggering and general weakness and labored respiration. I suspect that our whorled milkweed is somewhat injurious. I have noticed a great deal of this milkweed in Iowa recently. Cattle, apparently, do not eat the plant. This is also true of other milkweeds.

[1]Neurological Bulletin 1919; 11, No. 93.
[2]Bull. U. S. Dept. of Agri. 800 and 942.

Veterinary Surgery

Edited by L. A. MERILLAT, V.S.

SURGICAL ALLUSIONS.

No. 17. Permanganate of potash is a styptic par excellence for superficial bleeding that occurs after slicing off flat warts, kelloids and cutaneous growths such as small melanomas of the tail, grease-heal granulations about the feet and pasterns and granulomas of interfering, speedy-cut, etc. It is used as a powder carefully applied over the bleeding surface. Where movements of the patient prevent it from remaining in place for a few moments it may be wrapped in cheese cloth and bound for a few minutes. Try it.

No. 18. Everyone knows of the many uses to which rubber bands made by cutting up old automobile inner tubes may be put, but it has remained for the veterinarians of Saskatchewan to use them for surgical purposes. Head and others in this far away province use them for retaining tracheotomy tubes. By looping one of these bands into the slot on each side of the tube and then encircling the neck with an ordinary string or tape, the tube is kept taut in every position of the neck and thus not only assures retention but also keeps it comfortably flat against the neck under all circumstances.

No. 19. A movement is on foot to secure the enactment of laws in every state compelling the use of anesthetics for operations on all domestic animals. The initiative has been taken by the Blue Cross Society and will be pushed with ardor until brutal surgery will have passed into history. The duty of the veterinary profession in this connection is that of giving a helping hand by appointing an anesthetic committee in every state association to study the situation in detail and to collect the advisory information that will be necessary to secure the enactment of just and practically humane measures.

No. 20. Whenever everything else has failed to cure lamenesses in the lower regions of the fore extremities of farm horses try median neurotomy. Here is a simple surgical operation that the present generation of veterinarians is allowing to pass into complete disuse in spite of the fact that it will accomplish more in the treatment of chronic claudications of horses than all other procedures combined. It is a surgical operation that seldom if ever fails to give a measure of satisfaction to both owner and veterinarian. If the lameness is not always entirely cured it is always improved and the patient is never any worse from the simple ordeal. By following definite direction as to restraint and technic the operation is easily done and by the proper use of local anesthetics it can be made painlesss. Do not let median neurotomy pass into oblivion with the many other useful operations the passing generation of veterinary practitioners resorted to with good results while the horse was still the best means of individual transportation.

TEAT FISTULA

I would like to see a full discussion of teat surgery with especial reference to cuts which open the teat duct. I have had great difficulty in closing these teats during lactation.—Geo. A. H., Iowa.

About six months ago, I tried to repair a very badly lacerated teat. After a thorough cleansing and removal of protruding bits of tissue, I stitched it closely with small interrupted sutures, covered it with exible collodian, and wrapped it with tire tape, after inserting a miling tube. I instructed the owner to remove the tube twice daily for cleansing, but to replace it immediately.

The cow was then giving a heavy flow of milk, and I am inclined to attribute my lack of success to that, for an opening yet remains in the side of the teat, about the size of a small match. As the milk flow is now greatly diminished, I would like to try once more, and would greatly appreciate your advice on the matter of procedure before I begin again.—J. M. K., N. Car.

REPLY—Teat surgery presents so many angles that it would be impossible to cover them all in a brief discussion. But since the

subject is of such great importance we shall undertake to bring the subject before the readers of VETERINARY MEDICINE categorically in an early issue. As regard traumatic perforations of the teat duct we have had good results by using a short self retaining milk tube as a permanent drainage of the milk and treating the breach as an open wound. The tendency of such treatment is to dry up the affected quarter for the existing period of lactation, and in this respect is sometimes found objectionable. We have found iodoform the best antiseptic agent to apply to the wound. This should be blown into every recess of the wound cavity and quantities of it can be retained against the wound surface by cotton and adhesive tape.

When such cases are complicated with infection of the milk sinus and the lacto-purulent collection prevents drainage it will be necessary to press out the lumpy contents by massage. Irrigations of the sinus done carefully are admissible, but when this phase of the treatment must be turned over to untrained hands to continue it might better be omitted. When the fistula becomes chronic it is best to defer treatment until the quarter has been dried up by tube milking and then close the opening surgically. A liberal incision right into the duct bisecting the opening, a careful trimming of the old tract into silk-worm gut will usually cure a teat fistula. other attention and is as well as ever today.

Let us see to it that the lot of animals is made easier by being more kind to them ourselves.—Brunswick (Me.) Record.

The degenerating effect of cruelty on the one who inflicts it is marked, and inevitable. Not one word was ever said in favor of cruelty.—Worcester (Mass.) Gazette.

The philosopher who said cruelty was the one unpardonable sin was not far out of the way.—New Bedford Standard.

Shall we not endeavor to make the short span of life for the dumb animal know more of man's kindness?—Daily Democrat, Sherman, Texas.

Let's recognize the importance of domesticated animals in American life, and realizing that they are helpless before the merciless hand, spare them all unnecessary pain.—Haverhill (Mass.) Gazette.

We owe a mighty debt to dumb animals. We couldn't get along without them. Giving them a square deal is a matter of common decency, granting what they deserve.—Lynn Item.

HEAD'S CURE FOR EVERSION OF THE BLADDER

Dr. Chas. Head reports uniform success by treating Eversion of the bladder as follows: Insert a collapsible rubber ball, such as children use to play with, into the bladder through the urethra and leave it there until such time as all danger of re-inversion has passed.

After some days, when there is no more straining to re-invert the organ, the ball is simply removed with a pair of forceps.

THE WORLD LISTENS TO MEN WHO KNOW

In this day of keen competition, the **man who knows** is the **man who wins.** He has added to his own knowledge the knowledge of other big men in his line.

Reading of the right kind furnishes the foundation for **ideas.** It broadens the view—it gives one the big factor of success—**personality.**

Reading keeps the imagination alive—that faculty that makes men great. A little knowledge gained each day gives an **end-result worth while.**

PRACTICAL FORMULAE*

For Pruritus Ani and Vulvae.

℞

Acidi salicylici	3ii
Olei theobromatis	3v
Cetaceae	3iii
Olei myristicae	3iss

M.

S. Apply externally.

For Resolvent Purposes.

℞

Potassi iodidi	6
Iodi	12
Cerati	100

M.

Sig. External use.

For Bronchitis in Dogs.

℞

Codeinae sulphatis	gr.vi
Elixir. terpini hydratis	ad 3ii

M.

Sig. Teaspoonful every 3 hours for cough.

(Horses).

Chloroformi	āā 3ss

M.

S. Inject in one dose.

*From Winslow's Veterinary Materia Medica.

Abstracts of Foreign Literature

Edited by A. EICHHORN, D. V. S.

Significance of the Precipitation and Complement Fixation Tests in the Diagnosis of Contagious Pleuro-Pneumonia

Dr. Meissner and Dr. Albrecht (D. T. W. No. 37, 1920).

The precipitation test has been employed in the combined form (precipitin and precipitinogen in serum of cattle affected with contagious pleuropneumonia) on 1,772 samples from 1,472 animals of which 239 were proven to be affected on postmortem examination. The authors found the percentage of the positive reacting sera to be 91.1 percent. The precipitation test also proved satisfactory for the diagnosis of pleuropneumonia on postmortem examination as extracts from suspected pieces of lung gave a marked reaction with positive serum of a high titer. The authors are of the opinion that this method is one of the most important aids for the support of a pathologic anatomical diagnosis of contagious pleuropneumonia of cattle.

As the experiments with the complement fixation test for the diagnosis of the disease according to the methods of Schochowsky and Poppe failed to give satisfactory results, the method as recommended by Tietze and Giese has been employed. Of 56 animals 83.6 percent reacted positive and 16.4 percent negative; 187 samples of serum from 204 healthy animals gave negative results (91.7 percent); 234 animals of which 46 were affected with pleuropneumonia were tested by both methods with the result that of the 46 infected cases the precipitation test proved positive in 84.8 percent and the complement fixation test in 76.1 percent. Of the 188 healthy animals the precipitation test gave positive results in 0.5 percent and the complement fixation test in 5.8 percent. To what extent the failures might have been influenced by acute or chronic affections could not be determined in all the cases; only one thing could be established with certainty and that was that some animals with acute lesions as well as those with sequesters gave negative results to both tests.

Some experiments for the determination of the antibody formation permit the conclusion that the antibodies form only very slowly in the body of the animal and that they are soon eliminated. This is confirmed by the fact that the biological test at times failed in some of the acute as well as in the chronic cases.

Transmission of Strangles Through the Breeding Act.

Dr. Wiese in Berl. Tier. Woch., 1921, No. 23.

Similar to the observations of Himmel the author observed in the Spring of this year several mares which after breeding developed symptoms very strongly similating those of dourine Two such cases were treated by Wiese, one of which is of particular interest as in order to substantiate the diagnosis the case was carefully examined bacteriologically. In both cases the first symptoms of the affection was a certain lameness of the right hind legs. This was followed by phlegmonous swellings and discharge from the vagina and later from the right udder which developed abscess formation. In the yellowish white contents of one of the abscesses streptococci were demonstrated which were identified as the streptococci of strangles. In the first mare before the abscess formation of the udder the suckling colt of the mare developed a rattling respiratory sound and 14 days later an abscess above the parotid gland developed which opened and discharged a yellowish pus. About one week later the second pregnant mare of the same owner developed typical strangles. In the second instance the cause was the same, only that the colt developed the disease 14 days after the opening of the abscess. At the breeding station in the same locality a stallion was found which showed evidence of the remains of an abscess of the parotid region and this stallion was supposedly affected with strangles. This stallion was bred to one of the mares, whereas the other mare was bred to a stallion which was in an apparently healthy condition. As far as could be determined all the blood tests conducted on animals of this locality similarly affected failed to reveal a trypanosome infection.

Tuberculosis of the Muscles in a Hog.

Dr. C. Raschke in Berl. Tier. Woch., 1921, No. 24.

Tuberculosis of the musculature in food animals is of rather rare occurrence. The author in his nine years' experience in meat inspection recalls only three cases, two of which represented embolic tuberculosis of the myocardium in a hog and one case of tuberculosis of the intercostal muscles and in the muscles of the skin of a cow. In the latter case the tuberculous lesions were without a doubt secondary to the envolvement of the costal pleura. A recently observed fourth case may be added to the previously mentioned three cases. In a six months' old hog in fair condition tuberculous lesions were found in the thoracic and abdominal viscera; besides several vertebrae, the submaxillary and cervical lymph glands showed also envolvement. After the removal of the submaxillary lymph gland it was found that the surrounding connective tissue and the adjacent muscles, partly also the masticatory muscles, likewise the periosteum of the submaxillary bone showed tubercular changes.

Salvarsan Therapy in Veterinary Medicine.

Dr. O. Steininger in Inaug. Dissert., 1920.

The author has diligently collected all of the literature on this subject and included also his own experiments on four hundred and fifty horses. He concludes his work as follows:

1. Salvarsan, viz., neosalvarsan, is a safe remedy and is effective in contagious pleuropneumonia of horses as well as in chicken and geese spirillosis.

2. Salvarsan, viz., neosalvarsan, was found not specific but quite effective in its action in erysipelas in horses, in the so-called Brussels disease, in strangles, morbus maculosus, in rinderpest, in glanders, in rabies, in hog cholera, dog distemper, in infectious pulmonary affections, in pharyngitis, laryngitis and laminitis.

3. The salvarsan therapy gave doubtful results in polyarthritis and infectious pneumonia of colts, in cerebrospinal meningitis of the horse, in foot-and-mouth disease, in pleuropneumonia of cattle, in anthrax, swine erysipelas, tetanus, wound erysipelas, piroplasmosis, in trypanosome affections, in pernicious anemia, leukemia, tumors, in epizootic lymphangitis, in intestinal affections, skin diseases, phlegmons and in febrile conditions.

The Occurrence of Vitamines in Urine.

According to an article in the Zeit. Pharm. Weekbel., 1920, G. Gaglio observed that pigeons affected with polyneuritis recovered rapidly after they received 3 times three to four cubic centimeters of human urine which had been somewhat concentrated over a water bath. The improvement was noticed after a few hours and the following day the pigeons were entirely recovered. The treatment with vitamines from rice and yeast was far from being as prompt. From this observation Gaglio concludes that human urine contains vitamines which are either formed from the food or in the body.

Severing of the Spermatic Cord in Stallions.

Dr. Knoche in Berl. Tier. Woch., No. 23, 1921.

In connection with numerous reports on Steinach's rejuvenating operation it might be of interest to note that the Huasos of Chile perform similar operations.

In old stallions which are no longer suitable for breeding, the spermatic cords are severed or more accurately they are separated from the testicles by peeling with a knife. This method, of course, is not carried out with the greatest care and the arteries and veins are injured during the operation to such an extent that after a while atrophy of the testicle results. In each case, however, following this treatment an increased potency is observed in the animals and they are used at opportune times for exciting the mares. If this is accomplished the young stallions are brought into the corrals for the breeding of the mares. The purpose of the operations is, therefore, to preserve the physical energy of the male animals in full strength. The described method is designated as "Desbinzar."

Another operation which serves a similar purpose is the "Retajo," which is carried out on stallions of little value and serves the purpose of preparing the mares for the male breeding animal. In this very gruesome operation the potency and breeding quality of the stallion or ass is retained. Only the penis is bent backwards and is drawn out through an incision in the skin. The animal is, therefore, in a mechanical way and manner prevented from introducing the penis into the vagina. The first operation is of particular interest in connection with Steinach's treatment of rejuvenation.

Cattle Practice

Edited by JOHN FRANCIS DE VINE, D. V. S.

Professor of Bovine Medicine, New York State Veterinary College at New York University, New York City.

REMOVAL OF RETAINED PLACENTAE AND AFTER TREATMENT

When should a retained placenta in the cow be removed manually, and should the uterus be douched then and afterward as long as a discharge persists? —F. F. H., California.

REPLY—I wish that every one could understand certain things about treating retained placentae, as well, as we who are doing it daily understand it, even then they would have information that is feeble enough. We, of course, will learn more about it from time to time. If a uterus is to be douched it must be douched while it is still strong, but still it is usually best not to treat it for the first 24 hours after parturition, leaving it to do what it can by its own germicidal properties. After treating thousands of them it is my judgment that 24 hours after parturition is nearest the right time for interference.

Again, when an uterus is douched it should be thoroughly douched and not with a few gallons of water. Still another point, I am quite convinced that any irritant, and this includes Lugol's solution, is harmful in an acutely infected uterus, something very bland like boric acid, bicarbonate of soda or sodium chlorid are the best we know of at the present.

I am equally sure since we have gathered facilities at our office to work with in the way of a laboratory, that mixed metritis bacterins made up a wide variety of strains are positively beneficial in treating metritis which, of course, is associated with retained placenta, and if possible they should be administered just as soon as it has been determined that placenta is retained.

We begin by giving an injection about 24 hours after parturition, repeating them daily until the placenta has come away, and then at intervals of three or four days until the uterus has involuted and has apparently become no mal. This we do irrespective of what mechanical treatment the uterus may receive.

This I believe is partially or wholly new information. As to abortion bacterins being capable of producing immunity, here again, we have deviated from past customs with results that are so different with what we have had in the past that there is no comparison.

We do not depend upon the abortion bacterin alone, but add with it a heavy suspension of the so-called secondary invaders, constituting a mixed abortion bacterin. We do not recommend one or three injections as has been the custom of the past, but in delicate pure-bred cattle we treat them during the entire period of pregnancy buildir g up and sustaining an immunity.

INJURY DUE TO BREEDING

I was called to see a cow eight years old that had been bred a month before. This cow was all right before service of bull. Since that time she has been straining and showing evidence of pain wnen urinating.

On examination, I found an opening into the bladder on the upper side, the meatus urinaris being completely healed up. This is the second case of this kind I have seen. Could the bull have caused it.—W. H. M., Ohio.

REPLY—Yes.

RUPTURE OF DIAPHRAGM

I was called early one morning to see a cow about five years old, due to calf in about three months. This animal had been out in the pasture all of the previous day and was apparently in good health. On her way into the barn that night she stepped into a cave-off place and fell almost to the ground, but soon regained her feet. She ate part of her feed, which consisted of raw cotton-seed and turnips cut up into small pieces. At this time she did not seem to be in any pain or distress and her bowels acted normal just after the process of milking had been completed.

Thinking the animal was only a bit "puny," the owner did not think any more of her until he was awakened the next morning about 4 o'clock by the groans of this cow. He found her in the hall of the barn, in a recumbent position, with all limbs and her head stretched out. When I arrived about 5 o'clock there

was quite an accumulation of gas in the rumen, which I removed with a trocar. Her pulse was running about 80 beats per minute, temperature normal; respiration labored and much accelerated. I rolled her up on her sternum and she seemed to get easier and quieter for a time, especially when she was out flat on her side, and she always seemed to try to get the poll of her head to touch the backbone. When I rolled her up on her sternum she bent her neck and the head went back beyond left shoulder. She was in a semi-conscious condition and every time a slight noise was made she would be excited and quiver and jerk all over, especially with her neck and head. My diagnosis was withheld, but I thought it was either an internal injury, acute traumatic pericarditis or some kind of poisoning.

I gave her one carton and a half of bovine purgative and four tablets of rumen compound consisting of 15 grains of barium chlorid, 15 grains of tartar emetic and 8¼ grains of strychnin sulphate along with half an ounce of formalin to prevent gas formation. I returned in about six hours, only to find her no better, but growing weaker and weaker and much more excitable. The owner had given her four raw eggs and some melted lard. I gave her half an ounce of chloral to quiet her, and bedded her down well and left her as a hopeless case. She lingered along and groaned all the while, and finally died the next morning about 9 o'clock.

I was too busy to post this animal, but the owner posted it, and said that all he could see abnormal from that of other animals that he had butchered was that the gall bladder was very much enlarged, being about the size of an infant's head. He said that there was also some tumor-like mass situated in the pelvic cavity, which hung from the roof of the cavity and was soft and doughy in consistency. All of the stomach and bowels were normal, but the bowels never did move from the purgative I gave her.

From the history of the case, what is your diagnosis and what line of treatment should have been administered? I treated her for milk fever but to no avail.—J. H. M., Georgia.

REPLY: Regarding the cow that showed distress and died after a slight fall, it is probable that the fall and the fact that the cow was well along in pregnancy caused a rupture of the diaphragm. The apparent tumor had nothing to do with the death of the animal. If this diagnosis is correct treatment would have been of no avail.—E. L. Q.

REMOVAL OF WARTS FROM CATTLE

I have a cow which is nearly covered with warts (commonly called horny warts). They range in size from a pea to as large as the palm of a man's hand. Can anthing be done for this? Please answer at once.—G. V. S., Ohio.

REPLY: Administer one ounce doses of Fowler's solution of arsenic, in the feed three times daily. In addition to this, to expedite their removal, apply to the warts by means of an absorbant cotton swab, full strength Fowler's solution three or four times daily.

This line of treatment as a rule will remove warts from any animal in from three or four days to two weeks' time, no surgical treatment being necessary.—E. L. Q.

PROTEIN EXCESS CAUSES DEATH OF COWS

The following is a case report that I would be very grateful to you for assistance in diagnosing: On January 4, I was called to see a sick cow. On arrival I found a middle aged Holstein milk cow lying down, grunting with every expiration, refusing almost all feed, both roughage and concentrates, bowels practically normal, temperature 104.4° F. Another cow was noticed by the owner to be a little off, but he did not think it amounted to anything. She was eating fairly well but carried a temperature of 103° F. Respiration was accelerated in both animals. I noticed that several other animals were breathing rapidly so proceeded to take temperatures of them. I found that about eight of the animals were running fevers ranging up to 105.2° F. Only one other though had her appetite affected.

An investigation of the feed these animals had been getting showed almost entirely red clover hay, and a mixture of concentrates, as follows: corn meal, 1 cwt.; wheat bran, 1 cwt.; wheat middlings 3 cwt.; gluten feed, 3 cwt.; oil meal, 1 cwt., and cotton-seed meal, 75 lbs. The animals were getting a quantity of this mixture ranging from a handful to those giving but little milk to 12 pounds to those milking 25 pounds of milk. The clover hay appeared to be of good quality and to have been harvested in good condition. They had been allowed all the hay they could eat, and even more, for there was a surplus accumulated

especially at the end of the manger where the sick cows were. This, the farmer said had been accumulating for several days, and he was going to use it to bank the house.

The sickest two cows, and the one with the highest temperature were at the end where the hay had accumulated, and each was getting about 10 pounds of the feed mixture daily, and giving about 20 pounds of milk each. The amount of fever some of the animals were running did not seem to be in proportion to the amount of feed they were getting, for one animal getting but a handful had a temperature of 102.3° F. while another getting 12 pounds of feed had a temperature of 102.4° F. The animal with a temperature of 105.2° F. passed a trifle of blood in her feces but continued to eat as well as ever.

The two animals that were off feed continuously went from bad to worse in spite of epsom salts and castor oil. About the time their bowels became nicely relaxed their temperatures dropped to subnormal. Stimulation with nux, ammonia and caffeine failed to bring them up to normal or return an appetite. Peristalsis was much suppressed from the start, and at times seemed to be absent.

The feed was immediately changed for all animals, giving only 50 per cent of the former mixture and an equal amount of ground oats and wheat feed. All improved from the start, except the two worst ones. They both died after nine and ten days, the one showing so much distress in the start going first.

My diagnosis was gastro-enteritis, from the first, and was confirmed by another veterinarian called in consultation about the sixth day.

According to W. Woll's "Productive Feeding of Farm Animals," I figured these animals receiving 10 pounds of the feed mixture had a nutritive ratio of 1:4.23, and were getting protein considerably in excess of requirements for the amount of milk they were giving.

A sample of this feed mixture was sent to the State College for analysis, but they reported that it showed but 15.41 per cent protein. A sample of the gluten feed was also sent for analysis as it did not seem to resemble other gluten very closely, and one bag (100 lbs.) measured but 51 quarts compared with 70 of other gluten feed. The report on it indicated that it contained tissues from Indian corn, barley, and linseed meal.

I would like your opinion as to the diagnosis of this trouble, and the most probable cause. —C. F. B., Pennsylvania.

REPLY: I am inclined to think that the cows you describe were suffering from a combination of excess of protein and cotton seed meal poisoning, as the latter when fed in too large quantity or even in a comparatively small quantity long continued, gives rise to poisonous symptoms and sometimes, in fact quite frequently, if fed in larger quantities, to blindness either partial or complete, which in many instances is followed by the death of the animal. It is my opinion, the trouble with the above mentioned cows was entirely dietary and your change of feed was the proper means to take.—E. L. Q.

TRANSMISSION OF TYPHOID FEVER BY COW'S MILK

There is a family in town, several members of which have typhoid fever, and the doctor says the fever was transmitted through milk. The cows in the dairy under suspicion drink water out of an open well where the surface drainage can enter it. Is it possible for a cow to take up the typhoid germs in her food, and pass them through her system and the germs come out in the milk, virulent? Several other families were using milk from the same cow, and none of them have taken the disease, although the first family was stricken three weeks ago.—F. L. E., Illinois.

REPLY: The contamination of milk with typhoid germs ingested by the cow in drinking water is not among the probabilities, and it is almost safe to say not among the possibilities, although to our knowledge no tests have been made to determine this. It is not in accordance with reason that the cow, unsusceptible as she is to typhoid fever, would take up the germs in drinking water, that they would be transported in the blood and eliminated in the milk, still virulent.

There have been may instances of milk-born epidemics of typhoid fever. They have been due in most instances to contamination of the milk by being handled by typhoid patients or typhoid carriers. In a few cases, they have been due to contamination from the water used in washing the milk utensils.

The doctor to whom you refer has merely expressed an opinion, which there is no evidence to support, and which is, at this time, not susceptible to proof. Had he said the milk was contaminated by fecal discharges, containing typhoid bacilli ingested by the cow with her drinking water, he would have been on safer ground.—D. M. C.

DO ACORNS CAUSE ABORTION?

Dr. A. L. Birch of Waukon, writes as follows: "One of our clients had two cows abort shortly after they were turned into pasture where they ate a large amount of acorns. He suspected the acorns were the cause of their aborting. Will you please advice us if acorns can cause abortion?"

Acorns do produce poisoning, especially acorns of some of the black oaks, which I have discussed at some length in previous issues of VETERINARY MEDICINE. I do not think acorns produce abortion. If abortion occurred as a result of the change in feed, it must have been caused by eating ergot on the wild grasses, like red top, wild rye or quack grass.—L. H. P.

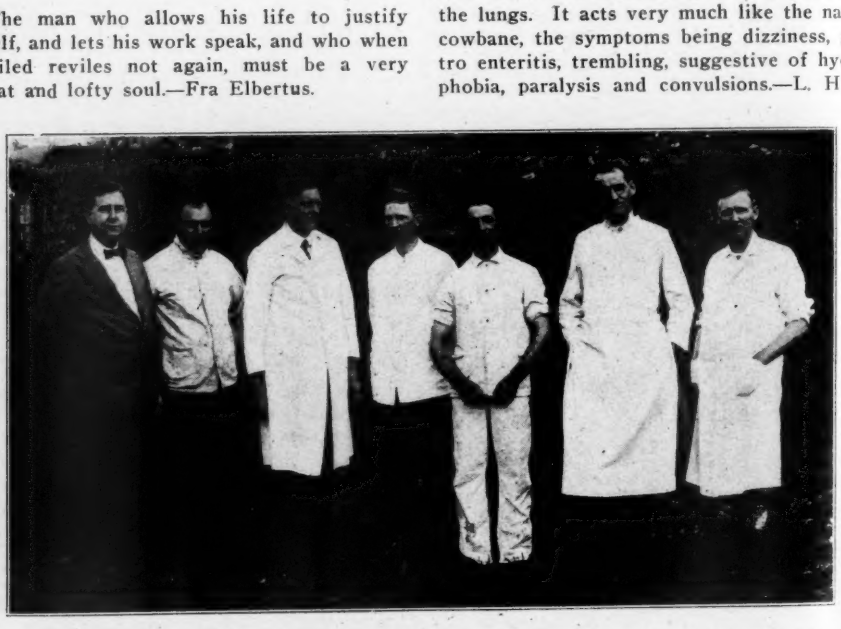
The man who allows his life to justify itself, and lets his work speak, and who when reviled reviles not again, must be a very great and lofty soul.—Fra Elbertus.

POISONING OF HORSES BY COWBANE OR WATER HEMLOCK

Dr. G. O. Smith, of Ligonier, Indiana, sent me a letter as follows: "I am sending a specimen of a plant suspected of being poisonous. They say it is water hemlock. Two horses have been poisoned. Symptoms noticed were as follows: Horses flighty or nervous, appearance very poor, looked wild-eyed, etc.; pulse and temperature sub-normal."

The plant sent in is cowbane or water hemlock, one of the most poisonous plants of North America. It is very common in the Mississippi Valley from Minnesota to Alabama. Another species occurs in California and the Pacific, northwest. The symptoms are:

The power of sight is often lost, but the mind usually remains clear until death ensues, as it soon does from the gradual paralysis of the lungs. It acts very much like the native cowbane, the symptoms being dizziness, gastro enteritis, trembling, suggestive of hydrophobia, paralysis and convulsions.—L. H. P.



At the request of veterinary friends, Dr. DeVine and those associated with him, have for sometime been holding clinics about every two weeks at the laboratories where those who wish may have the advantage of examining sterile animals that are at the hospital where there are facilities for taking care of about fifteen at all times. These occasions also give such veterinarians an opportunity to look into any special investigations they may be carrying on at the laboratories.

Those attending a recent clinic are shown in the illustration. From left to right they are: Dr. A. R. Ward, Laboratory Director of the Goshen Laboratories, Inc.; Dr. J. B. Skelton of the Orange County Veterinary Hospital; Dr. H. F. Palmer, Vice-President and Sales Manager of the Goshen Laboratories, Inc.; Dr. H. P. Stout of the Orange County Veterinary Hospital; Dr. Wallace F. Vail, Distributor for the Goshen Laboratories at Greenwich, Conn.; Dr. John F. DeVine, President of the Goshen Laboratories, Inc.; and Dr. Major Schofield, Distributor for the Goshen Laboratories at Miami, Florida.

Swine Practice

Edited by A. T. KINSLEY, M. S., D. V. S.

Vesicular Dermatitis

A VESICULAR dermatitis has become relatively prevalent in swine that are exhibited at fairs and shows in the central states. A similar condition has been described as measles in swine, papular, dermatitis, swine pox or impetigo. In our various text books, impetigo or measles has been described as a condition in which there is eruption of papules, vesicles and pustles. Measles or impetigo may be evidenced only as a papular eruption or it may occur primarily as a vesicular disturbance. It is not possible to state, from the evidence at hand, whether or not the so-called vesicular dermatitis recently encountered is a variation of measles or impetigo that occurs rather commonly in the South.

The vesicular dermatitis recently encountered is rapid in its onset and primarily affects pigs and shoats, it being less commonly observed in mature swine. It is apparently quite rapidly disseminated as the condition appears almost, if not simultaneously, in practically every pen in various sections of fairs or shows in which swine are exhibited. Breed or the color of the skin does not appear to be a factor in the occurrence of the disease.

The cause of this condition has not been determined. From evidence at hand, it would seem possible that the causative agent is a filterable virus. The conditions under which the swine are subjected incidental to exhibiting probably predisposes them, not only to vesicular dermatitis, but other infections as well.

Symptoms: The primary evidence of vesicular dermatitis in swine consists of a thickening of the skin, particularly of the ears and facial region, the ears become so heavy and pendulous that the head of the affected animal appears to be distorted. Soon after the thickening or edema has developed, vesicles of varying dimensions from mere points to masses as large as a fifty cent piece appear. Usually the vesicles rupture and the contained serum is discharged and only a slight or small scab formation occurs. It has been the exception to observe either papules or pustles in the cases thus far observed. The affected animal usually shows marked depression; there is a febrile reaction in which the temperature will be as high as 106° F. or 107° F. It is possible that the high temperature is the result of some disturbance other than the vesicular dermatitis. There is inappetence or diminished appetite; there is also usually a tendency to constipation. Some affected animals show evidence of cough, but this may not be evidence primarily of the skin eruptive disease. There is usually watery discharge from the eyes in the beginning which later becomes muco-purulent and the eyelids may be glued together. In some few instances, a marked muco-purulent nasal discharge has been recorded. The affected animal becomes thin and gaunt and the skin appears rough and unkept. In the majority of instances that have been observed during this season, vesicles have not been observed on the body posterior to the shoulders. Whether or not the limited area involved is evidence of a mild form of the disease has not been determined.

This disease has not proven fatal and it usually runs a relatively rapid course, the animal apparently making a complete recovery in four to seven days time. Because of the fact that the disease has not proven fatal, post-mortem lesions have not been recorded.

This condition is of considerable importance to the exhibitor of swine. It has also proven of interest and of some economical importance to the ordinary swine producer. It has been found that if swine are injected with anti-hog cholera serum and virus while in the incubation stage of vesicular dermatitis, the symptoms of the latter condition appear very promptly and in an exaggerated form, and this fact has been interpreted by some veterinarians and breeders to indicate the infection of vesicular dermatitis is transmitted in the

anti-hog cholera serum and virus. It may be possible to transmit the infection of vesicular dermatitis in anti-hog cholera serum or virus, but of the outbreaks reported up to the present time, it has not been possible to positively identify the causative factor as having been introduced in either serum or virus.

The cause not having been determined, it is not possible to give an absolute method of prevention or a positively line of treatment. However, it has been found that saline laxatives administered to swine that are in the initial stage of vesicular dermatitis will materially diminish the intensity of the disease and will also diminish the length of the course of the disease. It is also advisable to give such animals a slop feed during the course of the disease.

VETERINARY MEDICINE will be glad to hear from practitioners and others who have encountered this disease, and will also be pleased to have further information relative to its etiology, methods of dissemination and treatment.

ACUTE PULMONARY CONGESTION IN SOW

I have a case in a valuable sow which I was unable to diagnose or treat. On reaching the patient I found her breathing with mouth wide open and very hard for her to inspire at all. She showed no other symptoms. The temperature was 103, and the heart-beat rapid. I could make no diagnosis except that from appearance she had a foreign body in the trachea and I thought best that we look down her throat. Upon examining the throat, I could see nothing except foamy saliva. The animal died in a few seconds after being released, and an autopsy showed no symptoms or lesions except the trachea was filled with the same foamy material as was the mouth, and the lower two-thirds of the lungs was greatly congested. The sow was fairly fat and had a litter of pigs two weeks old. I would like to have a diagnosis on above case and also know if any treatment could have helped her.—R. L. W., Iowa.

REPLY—The symptoms and lesions found are indicative of acute pulmonary congestion and because of the similarity of this attack to acute pulmonary congestion, in hyperimmunes caused by the injection of large quantities of virus, it is possible that it was of thrombotic origin. The foamy mucosa observed in the trachea was due to dyspnea. As to treatment, the animal died so quickly that it is doubtful if any treatment would have been successful. The method of treating these cases that has been most successful is the injection of 5 to 10 cc. of camphorated oil into the muscles. Many hypers that have an acute attack of pulmonary congestion have apparently been saved by this method of medication. Atropin sulphate administered hypodermatically followed by the oral administration of digitalis separately, or combined with belladonna, is also indicated. The latter should not be administered while administering the atropin. Counter irritation or applications of hot, wet blankets are sometimes of service.

PIGS TOO INACTIVE

I would like to have your advice about a litter of pure-bred spotted Poland China pigs which were farrowed about two weeks ago. There were eleven in the litter, one died after birth and the sow trampled one.

The nine living are fat as butter, have a good appetite, but will pile up in the nest and go to sleep and get as limber as rags. You can pick one up and shake it for ten to fifteen minutes before you can awaken it. It will then struggle and run away. If they are taken out of the nest, they will wander around until they find another place to pile up. In fact, almost any place suits them. One or two of the pigs act a little as if they were getting thumps, but I suppose that is from lack of exercise. The sow is in good condition.

I suspect too much feed. Could you suggest something for these pigs on the poor description I have given you?—B. F. D., Indiana.

REPLY—You do not state the quantity and quality of food that is being given to the sow that farrowed the pigs in question.

It has been found necessary for successful production of pigs to diminish the carbohydrate ration to sows one week prior to farrowing and for three weeks thereafter. During this time concentrated foods that are known to be good for milk production should be used—such as ground oats, ground barley, skimmed milk, with the addition of a small quantity of tankage and mineral tonics. It is quite possible, from your description, that the cause of the condition in the pigs is due to some dietetic error, and we suggest that you have the sow placed on a ration similar to the above and report results.

COLOSTRAL MILK

In previous numbers of VETERINARY MEDICINE, the feeds and feeding of swine have been discussed. It has been contended that if brood sows are properly fed during the latter stages of pregnancy and for the first three weeks after farrowing, and provided further the pigs are kept under favorable sanitary conditions, the losses due to scour and other pig ailments will be reduced to a minimum.

Recent studies have thrown further light upon the value of the colostrum in milk. The quantity of the colostrum occuring in sow's milk has not been determined or such information has not been found in available literature. By a careful study it has been found that young infants possess more or less immunity to various infections. In many cases, the immunity in young children disappears, indicating that it is of a passive character. This would seem to indicate that the immunity in early childhood is probably due to anti-bodies obtained from the mother. In the investigations thus far conducted, it has been determined that the transmission of immune bodies from the mother to the fetus is always negligible.

In a recent investigation it has been found that the young of the goat when born possesses little, if any, agglutinin, but acquires considerable amount during the first few days from the mother's milk. It was also found that the colostrum possesses considerable quantity of agglutinin. The same appears to be equally true of other immune bodies. The amount of immune anti-bodies rapidly diminishes in the milk and practically disappears within ten days. From studies of cows' milk and blood serum it has been found that milk contains globulin in the colostrum which is identical to globulin in blood serum. Milk also contains casein and albumin. Other investigators have established the fact that globulin in colostral milk is identical with the serum globulin in the same animal, and the suggestion has been made that the purpose of the colostrum is to give to the new-born mammal a concentrated solution of globulin which carries the anti-bodies of the mother's blood.

It has also been found that the newly born mammal absorbs a larger percentage of ingested proteins than older animals.

"The inference to be drawn from laboratory observation is that the colostrum is a peculiarly valuable material for a new born infant, and that nature has provided it to help protect the infant against infection until such time until it can become more or less thoroughly actively immunized to the pathogenic microbes it meets, after leaving the protection of its mother's uterus." If an analogy can be justly drawn, the advantages of having the young pig obtain the colostral milk can readily be appreciated. Some breeders have found that it is advantageous and this is particularly true with pure-bred breeders to see to it that each pig is placed on a teat which it adopts as its future source of supply of food. By this means the pigs are properly distributed over the mammary glands and each pig obtains the first or colostral milk.

ANTHRAX OR LYE-POISONING IN HOGS

I was called to see a sick hog this morning. It is the first sick hog I have ever been called to see in my life. There are very few hogs in this county and most owners let them die if they cannot cure them themselves. This hog, according to the owner, would not eat for the last few days. There had been a rattling in the throat for the past two days.

When I got there the hog was sitting on his haunches, and we had difficulty in making him move. He was breathing rapidly through his mouth, still had the rattling in his throat, was frothing at the mouth, and the mucous membrane of the lips and mouth were pale and white. The tongue was pink, with a few red vesicles on the under side. The temperature was 100° F., and the lower bowels and rectum were empty.

We turned the hog over on his back, so I could look at his inner flank and abdominal region. There were no red blotches there at all. When we let the hog go he seemed exhausted, and stretched out as though he wished to die.

The owner told me, as I was leaving, that he had seen the hog pass a few worms and that he had given all his hogs (five in number) a little lye to rid them of the worms. This was the only sick hog he had. The hogs had a good pen to run in and a good shed to stay in out of the hot sun.—H. C. G., Oklahoma.

REPLY—In view of the fact that the owner had fed these hogs some lye it is quite possible that there has been erosion and infection of the pharyngeal mucous membrane and possibly also some injury of the oesophagus, due to the caustic action of the lye. Such being the case, perhaps the best line of treat-

ment would be demulcents and the feeding with oleaginous mixtures and slops.

It may be possible that this hog was affected with anthrax. If so, no doubt, it is dead before now. I believe that anthrax is not uncommon in your section of the country and it frequently affects the pharyngeal region of the hog, because they become infected by eating contaminated foodstuffs. Should this case have been anthrax, care should be exercised in proper disinfection to prevent further spread of the disease.

CALCIUM DEFICIENCY A CAUSE OF PARAPLEGIA IN SWINE

I am having trouble with sows going down in the back after pigging. They seem to be paralyzed in the hind legs and lumbar region. They drag their hind parts when they move around. What can be done for them?—W. L. H., Indiana.

REPLY—In the majority of cases, this condition is the result of a deficiency in the feed. The particular element deficient is calcium phosphate and if these cases are observed in the earlier stages, the condition can usually be corrected by the administration of codliver oil, 1 to 4 ounces daily, and calcium phosphate, one-half to one ounce daily, depending upon the size of the animal.

FORAGE POISONING IN SWINE NOT BOTULISM

Occasionally we have swine that have been fed moldy corn, swill or other moldy rotten food, producing forage poisoning or ptomain poisoning or whatever poison it may be termed. The symptoms are stupor, a wabbling gait in various degrees, with or without diarrhea. Some give it a common term and call it blind staggers.

I would like to ask you what the best treatment is in the way of medicinal treatment, and do you think botulism antitoxin would be of any value in these cases?—F. C. M., Ohio.

REPLY—Swine are subject to injury from moldy feed the same as other animals. The symptoms you have outlined are quite typical of forage poisoning in swine. This is not botulism, but purely a toxemia, from the products of various fungi that occur in food stuff.

The usual line of treatment consists in removing the cause, the moldy feed, and elimination of the toxins already ingested by means of purgatives. Enemas are sometimes of value.

INFECTIOUS ABORTION OF SWINE AND ITS PREVENTION

Is there a satisfactory line of treatment for contagious abortion in swine? Is there a bacterin or serum for this? If so, where can it be obtained? I have a herd of pure bred Polands that have nearly all aborted.—G. V. S., Ohio.

REPLY: Contagious abortion in swine is discussed at some length in "Infectious Abortion of Swine" on page 46, May, 1921, issue of VETERINARY MEDICINE.

This subject is also considered in detail in "Swine Practice," published by the American Veterinary Publishing Company, 9 S. Clinton St., Chicago.—E .L. Q.

THE MONTREAL VETERINARY CONVENTION

The Quebec Veterinary Medical Association, officially known under the name of College of Veterinary Surgeons of the Province of Quebec, will hold its annual convention soon. A veterinary surgeon officially delegated by the Societe de Medecine Veterinaire Pratique of Paris, France, is expected to be present to perform surgical work and possibly read one or two papers.

Owing to the uncertainty of the date of sailing of the French delegate, it was found impossible to definitely set the date of the convention.

Those who have had the fortune of being present at former conventions will probably give the incredulous look when they read that the forthcoming convention will eclipse anything ever attempted before by the Montrealers, but the officers have the determination which spells success with a capital S and since they have never before failed to keep their word, the convention is bound to be heard of favorably later on.

The demonstrations of the intended delegate from France will take the almost if not the altogether exclusive form of surgical work and many are the names of prominent veterinary surgeons throughout the country who have signified their intention of being present, announces the secretary.

Laboratory Diagnosis

Edited by C. A. ZELL, D. V. M.

DIRECTIONS FOR PACKING SPECIMENS FOR LABORATORY EXAMINATION

1. Gross anatomical lesions, where a bacteriological examination is desired, are best sent carefully wrapped in a cloth wet in a 2 to 10 per cent solution of farmalin, and properly boxed. For small specimens use the weaker solution. For large specimens, the stronger solution.
2. Chickens and other fowl should have the feathers removed, be wrapped in a cloth saturated with 10 per cent formalin solution and sent to the laboratory whole and unopened.
3. Specimens of tumors or other tissue, not for bacteriological examination, may be sent in a 4 per-cent formalin solution.
4. Specimens of blood, pus and body fluids for bacteriological examination or for serum tests should be drawn aseptically and sent in sterile containers (small bottles boiled and cooled), airtight. Such specimens should reach the laboratory quickly. If sent by parcel post they should be sent special delivery. It is best to send blood, pus and body fluids by first class mail, special delivery. If the quantity of pus is small, dilute it with sterile normal salt solution to prevent drying. Sterile containers will be supplied on request.

Quantitative chemical analyses cannot be furnished free of charge owing to the large amount of work often involved, but tests for the presence of the more common poisons will be made without charge.

Where an immediate reply either by wire or letter is requested, a nominal charge will be made. In such cases, the inquirer will be billed direct by the laboratory.

In all cases where laboratory examination is requested the history and symptoms of the case as fully as they may be obtained, and a description of the post-mortem findings if an autopsy has been made must accompany the request, the object being not only to enable the laboratory technician to render the greatest service possible, but also to make the report of value to readers who have not seen the case.

Send all correspondence and specimens to DR. C. A. ZELL, Room 1614, Masonic Temple, Chicago, Ill.

POSSIBLY A PARATYPHOID INFECTION IN PIGS

By mail we are forwarding you a portion of a spleen taken from a pig that died after a two-day illness. I did not see the animal before death.

Post-mortem lesions were reddened patches of skin under the belly; cloudy infiltration of the kidneys; small intestines were inflamed; all glands apparently normal. The spleen was very much enlarged, friable, spongy and very soft. Liver was somewhat darker than normal and gall bladder was tumefied; the bile was a cheesy mass.

These pigs are on grass pasture and have access to a river, but water supply is from springs. They received double treatment against hog cholera six weeks ago—H. T. F., Va.

REPLY—Bacteriological examination of this specimen did not reveal the presence of any pathogenic organisms whatsoever. Enlargement of the spleen, according to the findings of the post-mortem examination, may indicate a congestion, probably passive or of venous origin.

The clinical picture given indicates an infection of the nature of paratyphoid. There is, of course, a possibility of failure to demonstrate organisms in specimens and particularly when they are two or three days enroute.

Paratyphoid infection is characterized by more or less of discoloration in the skin, enlarged and tumefied lymph glands, tumefaction of the spleen and a parboiled appearance of other essential organs. In paratyphoid there would be a marked rise of temperature. The history given does not state whether or not there was a thermic disturbance in these pigs.

The editor of this department of VETERINARY MEDICINE will be glad to hear from you further relative to these swine and particularly whether or not there was a rise of temperature and the nature of the fecal matter. Was there any respiratory disturbance, such as cough?

ULCERATIVE ENTERITIS IN A DOG

I am sending you a dog's stomach for laboratory examination. The dog came to me with a gastro-enteritis and later began to bleed profusely from the bowels. He died suddenly after the hemorrhage started. Kindly examine for a poison of a corrosive nature. There were no foreign bodies present.—C. W. B., Kans.

REPLY—A chemical analysis of the stomach contents revealed no arsenic or other of the commonly used poisons. It is possible that this dog died of canine typhus or from ulcerative enteritis. You do not give sufficient symptoms on which to make a more positive diagnosis.

LUMPY-JAW ENZOOTIC IN PIGS.

I am sending via parcel post a quantity of pus taken from one of thirteen fall yearling hogs. Thirteen of the twenty-four hogs had these pus cavities about the throat and neck. I lanced them and treated them as I would actinomycosis. Please examine and report.

One year ago the owner had one cow with actinomycosis but it didn't break and discharge until a veterinarian operated on it.—J. S. H., Illinois.

REPLY—A microscopic examination of the pus revealed typical ray-fungi (actinomyces bovis) present in large numbers, and therefore your diagnosis of actinomycosis was correct.

While actinomycosis in swine is not unknown, its occurrence to such an extent in a herd is unusual.

CYSTIC CALCULI IN DOG

I am sending a sample of urine taken from a female dog about three years of age. The animal has been troubled with passing bloody urine for a year or more. She is apparently in good health otherwise. I have been giving her a tablespoonful of Diurol twice daily for the last four weeks and the owner says that she does not pass nearly so much blood with her urine as before.

From the analysis of the urine do you think she has cystitis or nephritis or either? If there are any suggestions that you may give me in regard to treatment and care I would appreciate them very much. She has been partaking freely of oatmeal water.—C. W. B., Kan.

REPLY—A detailed examination of the specimen of urine sent shows it to be practically normal except for a large amount of indican, which indicates intestinal fermentation and putrefaction, and which calls for the administration of cathartics and perhaps intestinal tonics, and better regulation of the diet.

The urine did not indicate the presence of cystitis or nephritis. It is my opinion that this dog is suffering from a cystic calculus or calculi. Pass a sound or probe into the bladder and ascertain if this is not so. If so, put her on lithium citrate combined with some alkali as sodium bicarbonate or sodium carbonate. Be sure to prescribe liberal doses of the first named drug. I cannot indicate the dose as you give neither the breed nor approximate weight of the dog. Of the alkali only sufficient is required to change the chemical reaction of the urine from the normal acid to alkaline. This is synergistic to the lithontriptic or lithotriptic action of the lithium citrate.

MIXED INFECTION IN YOUNG PIGS.

I mailed today a specimen for examination from eight-weeks-old pig. Symptoms: Temperature 104.4° F., complete loss of appetite after first few days. Respiration, not rapid considering fever.

I have lost three pigs under similar circumstances, all lived weeks before dying. Quite a number of pigs in this herd of 135 are sick.

The post mortem examination shows a few parasites in intestines but not enough to cause trouble.—R. A. S., Minnesota.

REPLY—Bacteriological examination of specimens revealed the presence of the typical bipolar organisms of hemorrhagic septicemia and many streptococci and staphylococci.

You undoubtedly have to deal with hemorrhagic septicemia and mixed infection. I recommend the prompt use of bacterins.

ARSENIC POISONING IN PUPS

I am sending the stomach and bladder of three-months-old puppy in which arsenical poisoning is suspected. It is thought the puppy ate some flies poisoned with fly paper containing some arsenic. There was retching and vomiting, much pain manifested by groaning, fast weak pulse, accelerated respiration; temperature 103° F. Subnormal before death. Length of time puppy was sick was three days from time it was first noticed off feed. until death. Symptoms named were most prominent twelve hours before death.

The autopsy showed congestion of kidneys, hemorrhages over mucosa of intestines and the bladder thickened as you will see.

Another one of same litter of five has also died and a third one acted similar, but is improving under treatment which was started early. Kindly make examination and report. If not arsenical poisoning what in your opinion was the trouble?—A. L. M., Ohio.

REPLY—Chemical examination did not reveal any arsenic in the stomach contents. This, however, does not necessarily mean that the pups in question did not die from arsenical poisoning as ample time had passed

to permit of the absorption of all of the arsenic from the stomach. However, your clinical picture, coupled with the post-mortem findings, causes me to agree with your diagnosis of arsenical poisoning.

CATTLE DIE WITHIN AN HOUR OF ATTACK.

I am mailing you a specimen of blood from a cow found dead this morning. This is the fifth animal (mature cattle) to die in this herd since 6 P. M. yesterday. Four died within an hour after showing sickness—just became comatose and died.—R. W., Vermont.

REPLY—Bacteriological examination of specimen of blood showed the presence of large numbers of bipolar organisms of hemorrhagic septicemia and no other pathogenic organisms could be found.

We can only conclude from this that you have to deal with hemorrhagic septicemia. The history of the case would indicate that it is one of an extremely virulent type.

Good sanitation, the removal of the well from the affected animals and from contaminated quarters ,and the use of bacterins on exposed animals is advised.

POSTERIOR PARALYSIS IN PIGS.

I am sending you by express a live pig for diagnosis.

It is suffering as you will see from a posterior paralysis. These pigs are all in good condition being fed on skimmed milk, corn, oats and salt with tankage most of the time. Surrounding conditions very good with clean quarters and pasture. For two weeks we have had these pigs on a heavy lime and potassium salts but the condition seems to be getting worse. I have posted several and could find nothing. These pigs crawl around and eat for a couple of weeks then die. Please make a diagnosis if possible, prescribe treatment.—J. H. O., Iowa.

REPLY—This pig arrived during an extremely heated spell of weather and was greatly exhausted. It died soon after arrival.

The autopsy showed a general congestion of practically all organs, especially the lungs, which were dark red and the kidneys which showed hemorrhagic nephritis.

Bacteriological examination revealed that in addition to many streptococci and B. coli, the presence of bipolar organisms of hemorrhagic septicemia.

I am inclined to believe that in this herd, you have to deal with a type of hemorrhagic septicemia of rather low virulence. It is not impossible that the streptococcus plays an important part in these peculiar cases. Autogenous bacterin should be useful in this condition.

ALL PIGS ON THE FARM AFFECTED WITH NECROBACILLOSIS.

I am sending you a sucking pig. This is one of a herd of twenty and they are all affected the same as this one. Let me know by wire regarding the diagnosis and prescribe a treatment for the rest of herd.—J. H. K., Wisconsin.

REPLY—The specimens showed the typical postmortem lesions of necrobacillosis and many typical necrophorus organisms were found in the lung abscesses.

Good sanitation should be instituted and the remaining animals in the herd should be given an autogenous bacterin immediately.

LUMBAR PARALYSIS IN CATTLE.

I am a reader of the Veterinary Medicine and have been helped a number of times by reading your diagnosis on different cases, so I am sending a sample of blood taken from a cow.

The owner has been losing a few off and on all spring, in fact, a few die each year all over this country from what seems to be the same cause.

I suspect hemorrhagic septicemia or maybe poisoning from some plant as these cattle live exclusively on the range.

They just die, there seem to be no symptoms of any disease, big fat cows. Many times the cows get down in the back and cannot arise, some eat after being down and some refuse to eat.—V. J. H., Texas.

REPLY—No bipolar organisms of hemorrhagic septicemia or other pathogenic organisms were revealed by bacteriological examination. Extensive animal inoculation experiments also failed to indicate the presence of pathogenic organisms.

From the negative laboratory findings and from the clinical picture that you give, we think you have to deal with lumbar paralysis, the ailment so splendidly described and illustrated by Dr. A. T. Kinsley in the July number of Veterinary Medicine. Reread the article and see if the condition described does not fit your cases to a nicety.

CARCINOMA OF THE FOOT OF A DOG.

I am sending under separate cover a tumor that I have taken from a dog's foot. Kindly make an examination of it and let me know the results.—C. W. B., Kansas.

REPLY—Microscopic sections made from the tumor show the presence of carcinomatous tissue of a malignant type. Therefore the dog may be said to be suffering from cancer of the foot.

Please note that in asking this department for laboratory examination, that the history and symptoms of the case is required, enough to make the report of examination of value to others who have not seen the case. Please observe this regulation in sending in material in the future.

DIAGNOSIS OF HEMORRHAGIC SEPTICEMIA CONFIRMED.

Please examine the enclosed blood specimen for hemorrhagic septicemia, and let me know whether you find any bacteria.—E. A. M., Illinois.

REPLY—Bacteriological examination of blood sample revealed a large number of the typical bipolar organisms of hemorrhagic septicemia which confirms your diagnosis. You should lose no time in using hemorrhagic septicemia bacterin this herd. Please furnish history and symptoms when asking for laboratory examination. The necessity for this is so apparent, if the report is to be of general interest. I hope further reminders of this sort can be avoided.

HEM. SEP., NOT FOUL PLAY, TO BLAME.

I am sending under separate cover, sections from the small intestines of a one-year-old heifer which has been out on pasture. The lesions mailed were the only abnormal conditions found. This is the eighth animal to die in this herd within the past two months. Two of the animals I posted and found nothing abnormal. The owner has good and sufficient reason to suspect foul play from a neighbor. Please advise me of your findings. —F. K. M., West Virginia.

REPLY—Bacteriological examination showed many bipolar organisms of hemorrhagic septicemia present. Chemical examination for ordinary poisons gave negative reactions all the way through.

There is no doubt but that you have to deal with hemorrhagic septicemia in this particular herd, rather than poisoning. Hemorrhagic septicemia bacterins should be given the remainder of the herd.

SARCOMA IN A FOWL.

I am forwarding the head of a two-month-old chicken presenting a large swelling on the left side of its head. My attention was first called to this three weeks ago when I made a diagnosis of roup, the swelling being very prominent at the time. I immediately prepared for some fancy surgery, which however, failed to reveal any accumulations other than a fair flow of blood. I changed my diagnosis, and have since believed it to be an ephithelioma. The wound healed readily at the same time the swelling continued to enlarge. At no time did this chicken appear sick in fact it was doing well.

The specimen is being packed in sodium chlorid, after being thoroughly cooled. What is the lesion?—S. K., Illinois.

REPLY—Microscopic examination of sections from the tumor proved it to be a spindle cell sarcoma, a very malignant new growth.

PRACTICAL VALUE OF PURE SCIENCE

The man who gives up his lifetime to putting science at the service of business and humanity finds himself eternally asked, "What's the use?" Some people rise from their seats and say:

"I see that some scientist fattening at the government trough has measured a hundred-thousandth of an inch. What's the use?"

Even some solid-headed business men read of research departments and snort in disgust: "What's the use? The old rule of thumb is the common sense way."

We think of railroads as progressive—of railroad men as efficient, but—

There are only two test plants of locomotives in the country, one owned by the Pennsylvania, the other at the University of Illinois. Only a few railroads try out locomotives on road service by means of a dynamometer car. What's the use?

One road that did found that by putting an exhaust tip three-eighths of an inch smaller on a Mikado type locomotive it increased the firebox temperature 400 degrees and saved $57,000 a year in coal. On another line tests made it possible so to alter a locomotive as to reduce its fuel consumption 10 per cent and permit it to haul three more passenger cars on less coal and water.

That's what's the use!

Parasitology

Edited by MAURICE C. HALL, Ph.D., D.V.M.

Parasitism as a Disease of Young Animals

The dictum of the great teacher, Froebel, "Let us live for our children," was a recognition of the fact that youth is, among other things, a plastic stage, a period in which it is possible to mold the individual. Much is possible in youth which is later impossible, since maturity is a comparatively settled affair in which modifications and readjustments are difficult and growth is possible only to a very limited extent. What is true in this respect of the human animal is likewise true to a great extent of live stock—youth is the time for shaping the individual along the lines leading to a desirable maturity.

Diseases of Infancy and Youth

In the case of animals and man alike, there are diseases of infancy, of youth, of maturity and of old age. So far as parasites are concerned we have not been in the habit of regarding them as distinctly characteristic pests of the young animal in the sense that measles is distinctly a disease of childhood. To be sure, we have recognized that young animals suffered more from a given parasitic infestation than did older animals and that deaths from parasites were far more apt to occur among young animals than among older ones. We have also recognized that in the case of man, parasites are far more prevalent among such groups as children, savages and persons of inferior mentality, but this fact has been correlated with a lack of hygienic and sanitary habits among those groups, rather than with age in the case of children or mentality in the case of savages or persons of low mentality.

Parasites and Young Tissues

Of late there has been an accumulation of evidence to the effect that the young animal is actually more susceptible to infestation with parasites than is the older animal. This appears to be more especially true for parasites which must travel through the host tissues to their definitive location. Experimental infection of animals with parasites is commonly more successful where the experiment animals are young than where they are mature. Among the best evidence we have at present along this line is that in the case of the ascarid worms. It has been found so easy to infect young pigs with ascarids, with serious and even fatal results, and so difficult to infect older animals that a system of field prophylaxis based on these facts has been developed and applied with excellent results in practice. This system depends on the fact that the tissues of the young swine are apparently quite permeable, so to speak, to ascarid larvae in their travels from the digestive tract through the circulation, including the transfer from one set of capillaries to another in the liver and from the capillaries in the lungs to the air spaces, and thence back to the digestive tract. If young animals are protected from exposure to ascarids at this critical and susceptible period of life, they are apparently well insured against serious injury later by the mere fact of age alone, with whatever that implies in the way of tougher tissues and increased resistance to parasitic invasion and the consequences of such invasion.

The McLean County System of Swine Sanitation

This system of swine sanitation is known as the McLean County system, as it was developed and is being practiced on a large scale in McLean County, Illinois, a large number of the swine raisers in that county raising their pigs along lines laid down by the Zoological Division of the federal Bureau of Animal Industry. The field practice rests on the scientific basis of the work on the life history of ascarids carried out by Dr. Ransom. Under the McLean County system, clean sows are put into clean farrowing pens just before farrowing and are then put with their litters onto clean fields for a period of about four months.

This is the system in brief. The details are simple. Sows are thoroughly cleaned by

washing and scrubbing in order to remove all dirt and its possible content of worm eggs, larvae, etc., in order not to carry infection into the farrowing pens or to carry it on the udders where it can be taken in by the litter in nursing. The farrowing pens are thoroughly scrubbed with water, soap and lye. Within two weeks after farrowing, the sows and litters are put on clean fields away from other swine and kept there for about four months. There is no exact period at which swine establish an immunity to worm infestation, and in all probability such a thing as absolute immunity does not exist or is rare, but the degree of immunity increases rapidly through the first few months of life and a satisfactory immunity is established at the end of four months.

Results of Swine Sanitation System

The results attained in McLean County have been surprisingly satisfactory. Losses from thumps and pulmonary intestinal ascariasis and from such conditions as "bull-nose" have been stopped and the young animals, protected from stunting as a result of these conditions have made the growth to which their youth, breeding and feed entitled them. From a monetary standpoint, the cost of the prophylactic measures outlined here has been found to be more than offset by the increased growth of the pigs and the freedom from the usual losses among pigs raised under insanitary conditions and without precautions in the way of protection from worms.

Protection for Other Young Animals

What has been done in the way of protecting pigs from parasites during the susceptible period of infancy and youth can be done and should be done in protecting other young animals. Colts, calves, lambs, puppies, kittens and chicks are more susceptible to parasitic invasion and suffer more from it than do older animals of the same species. The really enormous verminous aneurisms are said to form only in colts, not in old horses, which develop smaller ones. The losses reported among cattle as a result of the invasion of the intestinal mucosa by Cooperia punctata have been among calves so far. Lambs are notoriously more susceptible to injury from stomach worms than are older sheep. Puppies are the chief sufferers from kennel anemia due to hookworm infestation. Kittens are liable to harbor large numbers of ascarids and to die from such infestations. Chicks are susceptible to gapeworm and a large proportion of those suffering from gapes die of the disease but mature chickens rarely harbor gapeworms and are very difficult to infect experimentally. Protection from parasites during the danger period of infancy and youth in the case of these animals would undoubtedly be practical and profitable. In the case of colts, calves and lambs, it is common practice to put these animals on the best valley pasture, but unfortunately this supposedly best pasture is frequently the most dangerous pasture on the farm. Hillside pastures are usually much safer, since the manure with its content of parasite eggs and larvae tends to wash away with rains and the pastures are rendered safer by this cleansing action. The better drainage of a hillside pasture dries it sooner and so affords less of the humidity which is favorable for parasite development. On the other hand, the low valley pasture holds its manure content and receives the wash of manure from the hillside pastures. It holds its water content and receives that from the hillsides in addition, and this moisture affords better developmental conditions for the parasites deposited on it and washed onto it. The young herbivore should be put on the safest and cleanest pasture available, one which has not had live stock of the same or related species on it for a year or more if possible. It would be advisable to provide a special pasture for this purpose wherever feasible. Clean udders for the nursing mother afford protection to the young from one source of infestation. Similarly, thoroughly clean kennels, cages and grounds should be provided for pups and kittens and the mothers should be kept clean for the critical period just before birth and during the nursing period. Chicks should be put on clean grounds and protected from gapes by being kept away from turkeys, the carriers of gapeworms, and from grounds used by turkeys.

The Role of the Veterinarian

The application of such measures is not difficult. The initiation of new measures involves more or less mental effort and the mind usually finds the new thing difficult and objectionable. Once measures are applied, their continuous application and practice become increasingly easy and satisfactory. In the initiation of prophylactic measures the veterinarian can render a great service to the stockman and the live stock industry by advising his clients and suggesting details of procedure, since his knowledge of the reason

for these measures and the probable benefits is greater than that of the stockman. In the benefits of the stockman the veterinarian shares. It is a short-sighted policy to say that diseased animals mean practice for the veterinarian. Dead animals and stockmen who go out of business as a result of continued and considerable losses furnish no practice to the veterinarian, and better live stock means better values and better fees for services. Let the veterinarian further the program for the protection of young live stock against parasites, on the score of altruism if he cares to, or on the score of self interest if he prefers this.

"SALT SICK" IN CATTLE

I noted with much interest your article in the June issue of VETERINARY MEDICINE. It occurred to me that perhaps you could offer some good advice regarding a problem that has puzzled me for some time.

Some two years ago while assistant state veterinarian for Florida I begun the study of the disease or condition quite prevalent in many sections of this and adjoining states and commonly known as "salt sick" of cattle, the former state veterinarian of this state gave an opinion that the trouble was due to extensive infestation with hookworms — uncinaria—or dochmiasis. That idea is still extant in some circles but after the first few cases studied I dismissed that as a primary cause. It may be and probably is quite important as a secondary factor. From numerous indications and observations I came to the conclusion that the primary cause was none other than a lack or proper mineral salts in the food and soil. Working on that basis I evolved a remedy that has given almost one hundred per cent good results. I have had opportunity to watch results on eighty-seven head of well developed cases. One died within three days after beginning treatment and one now under observation and treatment has refused absolutely to respond to the treatment as previously given. All the other eighty-five made good and speedy recoveries. Whether this one is also highly infested with hookworm is the question I wish to get at. What method would you suggest as to technic for collecting feces, preservation, place of examination and method of preparing the material for microscopic examination. I have examined several specimens for hookworm, but all had been prepared for the purpose by the state bacteriologist. Probably I could get an examination at Jacksonville at the Public Health Laboratory. I would like to do it properly so when the question is raised I can be in position to refute or affirm.

I am preparing a full report of my study and observations for publication and will send it to VETERINARY MEDICINE for publication I expect to make a resume or abstract of it for use in the farm papers here, as the subject is of vital interest to the stockmen of this state and along the gulf.

A physician here who runs a drug store as a side line has made up a remedy that he advocates as a specific. I have looked over his formula and find it too much of the shotgun type to be effective. However, he uses sulphate of iron as forty per cent of his mixture. I have abandoned iron and use raw bone meal as the basic ingredient; he omits calcium in any form If my results in eighty-five cases are to be considered, then I am on the right track—if this one case shows up a high infestation of hookworm then I may be wrong.

If you have any suggestion or advice to offer it will be highly appreciated—E. D. H., Florida.

REPLY—The subject of examining feces for parasites and parasite eggs was covered in a general way in VETERINARY MEDICINE in September. For the special case you refer to, ascertaining whether cattle are infested with hookworms, a fecal sample may be collected at any time, taking precautions not to have this sample contaminated by contact with other feces which might contains parasite eggs and confuse the findings. A sample containing 2 to 3 drams of feces is probably large enough for all purposes. If it is not examined soon after being collected, it may be put in a suitable jar or wide-mouthed bottle half full of 1 to 2 per cent formaldehyde solution to prevent fermentation.

The technic to be used in preparing a slide for examination depends on the equipment and taste of the person concerned. A method which is very satisfactory involves the use of a set of at least 2 screens in a rack, with a course screen of 6 mesh apertues to the inch at the top and a fine screen of 100 mesh apertues to the inch at the bottom. Between these one may put from one to a half dozen screens, keeping them arranged in the

order of size. Lacking these screens one may use cheesecloth stretched over the top of a jar. The feces are shaken up in the formaldehyde solution and poured over the screens or cheesecloth into the jar or a deep tray or dish under the screens. What remains on the screen is then washed with clean water. The contents of the jar or dish are then allowed to stand for a minute or so in the case of a dish or longer in the case of a deeper jar, and the top half of the contents then decanted to remove soluble coloring matter and flating flocculent matter. Clean water is added to replace the water poured off and the washing process repeated until fresh water stands clean on the sediment. The water is then poured off until only a small amount is left on the sediment. Part of the sediment is then poured into a test-tube and allowed to sediment for a few minutes. A part of the sediment, preferably the middle portion, since the upper portion contains the most flocculent matter and the lower portion the most sand, is then drawn up, with a pipette, put on a slide, covered with a cover glass and examined with the low power of the microscope. Hookworm eggs may be recognized as clear, thin-shelled, elliptical objects, with a central granular portion in the process of segmentation in fresh feces. They are 75 to 98 microns long by 40 to 50 microns wide.

Unfortunately there are a number of other nematodes parasitic in cattle which have eggs of the same shape as the hookworms eggs and with measurements which overlap these of the hookworm. At the present time it is practically impossible to make definite identifications of species on the eggs where the shapes are similar and the measurements overlap, though we are able to establish a presumption to the effect that a certain species is probably present or probably absent on the presence of eggs of the right size and shape or the absence of such eggs.

The simplest technic for examining cattle manure for the presence of parasite eggs is to take a small amount of the manure on a toothpick, put it in a drop of water on a slide, mix the manure and water to form a uniform mixture, cover with a cover glass and examine with the microscope. The trash in such a preparation makes it more difficult to examine and 10 such preparations probably would have fewer eggs in them than one preparation made according to the method first given. However, in default of the apparatus necessary in the first case such preparations may be made by this "smear method" and if eggs are numerous they may be found with little difficulty.

Regarding the nature of "salt sick," there has been so much confusing and contradictory evidence in regard to this condition that it is unwise for anyone who has not actually studied cases agreed to be this disease, in the region where these cases occur, to express an opinion. Such popular terms as "salt sick" are liable to be used by people in general to indicate different diseases in different animals or at different times, and they may at times cover a disease complex in which two or more elements are present. It may be that "salt sick" is sometimes applied to clinical cases of hookworm disease in cattle and sometimes applied to cases of faulty metabolism, such as you refer to, where there is a lack of certain necessary mineral salts or other elements. Your cases apparently fall in the latter group.

ATYPICAL MILK FEVER AND FORAGE POISONING

I have frequently met with a passive cerebral or nervous condition in the cow not described in any textbook I have.

I am giving a composite picture from six cases occurring anywhere from two weeks after to a very remote period from calving.

Temperature at or near normal, pulse 60 to 90, natural to frequent nervous defecation. Expression silly. More or less excitement and incoordination generally aggravated on handling.

Wither licking at the side as though fighting flies, biting at and missing grass, licking at a certain spot on the ground, mouthing a plow handle or similar object, nibbling at the protruding tongue and slobbering.

This "nutty" condition lasts from a few hours to two days. Eliminated: No retained afterbirth, no cause for auto intoxication, no foreign body in the mouth or bad teeth, no dog bite.

Treatment: "Wait and see," salts, rumen tablets, lobelin or milk fever treatment as most nearly indicated.

What is it and what would be the proper treatment?—D. S., Ky.

REPLY—This condition has been discussed a number of times recently in VETERINARY MEDICINE. See the Reply to H. C. M., Pennsylvania, pages 55 and 56 in the September issue of VETERINARY MEDICINE.—D. M. C.

Queries and Answers

Edited by E. L. QUITMAN, D. V. S.

Septic Metritis and Estrum in the Bitch After Spaying

Case No. 1. A Boston terrier on which hysterotomy was performed, June 8, 1921; about one week later, she came in heat but that soon passed off. However, she continued to discharge a thick sanguinous fluid. About two weeks ago, she was noticed to be slightly stiff, but got over that. On August 7th, she was brought to the office apparently suffering from acute indigestion, but the next day the symptoms of distemper were apparent. There was considerable sanguinous discharge from the vagina this morning (August 8th), but none during the day.

Case No. 2. Collie bitch, spayed December 6, 1920; came in heat about three months ago and heat has reoccurred about every four weeks, with an increasing sanguinous discharge each time, which has been continuous now for about three weeks. She was brought to my office this morning and had a temperature of 105° F., rapid pulse and respiration, no appetite since yesterday morning, vomiting and showing a watery discharge from the nose, large clots of blood passed from vagina, none during the day. Tentative diagnosis of distemper.

Previously we have had success by removing a portion of each horn of the uterus and leaving the ovaries, not only in dogs but also in cats. One heat period occurred in some instances, but no bad after effects, and they did not become as lazy as when the ovaries were removed nor take on so much fat.

I should like to know what causes the continuous flowing and what treatment should be given to overcome it. Neither bitch ever had puppies. While it doesn't seem possible that it could have any connection with both being sick at the same time, they belong to father and son, living in different parts of town, and are the only cases of distemper I have had for some time, providing I am correct.

What can you suggest to overcome this condition if they get over the distemper, as it is rather disagreeable and not satisfactory to the owners? I am irrigating them with normal salt solution and giving ergot, besides treating the distemper.—R. F. A., Iowa.

REPLY—I wondered until nearly the end of your report why you did hysterotomy on these dogs. Hysterotomy merely means an incision into the uterus; in the bitch, it would include into the horns as this animal has so little body to the uterus; an incision such as is made in Cesarean section.

Hysterectomy means the removal of the uterus, which seems to be the operation performed by you.

Our diagnosis in both of your cases is septic metritis or septic vaginitis, with septicemia. The collie being by far the more serious.

Treatment: Reopen the abdominal cavity and remove the entire horns, falopean tubes and the ovaries. This, however, you cannot do while your patients are suffering from distemper, as you say. In the meantime, I would recommend daily injections with Flavisol once or twice. We would put these bitches on quinin, tincture chlorid of iron and strychnin internally. We cannot give you dosage as you do not give the ages of the dogs.

Permit me to say that removal of the horns only, leaving the ovaries intact, will prevent conception of course, but it will usually fail to prevent the estrual periods, which is the main object of operation.

When reopening a bitch from which you have removed a portion of the horns only, some months after the operation, in most cases you will find the remaining stumps filled with a creamy material if they have not become infected, and with pus if infections had occurred. In both of your cases it

is evident that infection occurred at the time of the operation.

Irrigating with salt solution has little, if any value, in such cases as these. If properly made it is aseptic but it has no antiseptic or germicidal properties, and any good it can do comes from the mechanical removal of infected material which under the conditions existing in the horns of the uterus is practically nil.

ACUTE BOTULISM IN HORSES.

I was called at 3 p. m. to see an 11-year-old grey horse that had been hauling gravel in the forenoon. The horse had refused water and feed at noon. The driver hitched up a grey mare and a sorrel mare and drove about one mile, leading the grey horse. The driver put the mares in stalls, leaving the horse in a driveway and came after me, a distance of about three-quarters of a mile. When I reached the barn, the sorrel mare was dead and the grey horse was trembling all over and had a weak pulse.

I administered one-half grain of arecolin and one-half grain of strychnin. The horse was dead in 30 minutes.

We first noticed the grey mare at 4:30 p. m. She had some muscular contraction; mouth, tongue and gums very red; eyes badly congested; temperature 101° F.; pulse full and regular; respiration normal; some gastric pains. The mare seemed to be rational, and nickered for her colt. I administered one grain of arecolin and a large dose of lobelin sulphate. I also introduced the stomach tube and flushed the stomach with about eight gallons of water and siphoned very little food. I gave her six ounces of linseed oil with two ounces of turpentine. Two hours later I made another examination. There was considerable gastric pain; temperature 101° F.; pulse full; respiraration somewhat heavy. At 11 o'clock she seemed to have a great deal of pain in the abdomen; I used the catheter and evacuated about four ounces of urine. The mucous membranes, tongues and gums were blue. I administered more oil and turpentine. She died at 1 a. m.

The next day at 7 p. m., I was called to the same farm to see a roan driving horse. I mixed one gallon of linseed oil, one gallon of rain water, one ounce oxid of magnesia and one ounce of iron sulphate, putting the oil in after mixing the other ingredients. I gave four ounces every three hours. This horse had the same symptoms as the three that died. At the present time—July 1—this horse seems to be all right, and has been used some.

On June 11, at 5 a. m., I was called to see a five-year-old black horse. I drove one mile to see him, and when I reached there he was dead. I took out the brain, spleen, stomach and food, and sent them to the University of Illinois for examination.

These horses were all kept in the same barn. They were fed corn, hay and oil meal. What killed them?—H. P. McKinney, Neoga, Ill.

COMMENT—It is our opinion that the horses mentioned in the foregoing died of acute botulism. These cases were apparently so acute that we do not believe any treatment would have been of value. However, on account of the weak pulse, we would suggest the administering of camphor in one-dram doses, subcutaneously. We would also suggest the possible advantage of the oral administration of permanganate of potash combined with alum sulphate.

The use of the quick-acting purgative mentioned is always in order, but there is no necessity for using the water with the linseed oil. The linseed oil alone would have served to hold in suspension the magnesium oxid as well as the iron sulphate. There is no rational use for the latter drug, but alkalis such as magnesium oxid or bicarbonate of soda given in liberal doses seems to be of value in treating poisoning by the bacillus botulinus.

FLEA SOAP POISONING IN DOG

I am sending a sample of Elkay's Flea Soap for dogs V503, under separate cover and I wish to know whether this was the cause of a client of mine losing a very well-bred airedale dog, fully grown.

The history is as follows: On July 5th the soap was used on the dog to destroy fleas and used according to directions on the box (cold water being used). The same day the dog was clipped except around the neck. The washing of the dog made him very sick and also made him vomit and he would roll on the grass and bit his skin and seemed to have a terrible itching and burning of the skin when brought to me on July 7th. Upon examination I found the skin having a few small eruptions and exceedingly yellow all over. Looking in the mouth the gums were yellow, also the same color seen in the eyes. At first I thought it was just a burning sensation upon the skin

due to the use of this preparation and advised washing him with a solution of boric acid which was done and seemed to stop this condition and I saw no more of the dog until July 9th when he was again brought to me and as I looked upon him I could only see the frame of a once nice fat dog two days before. I was told he had not eaten since the evening of July 7th and he could hardly walk alone. The gums were a deep yellow, tongue the same and also the eyes. The skin showing many small red spots but aside from those was very yellow. Bowels were moving freely and the rectum entirely empty. Urine very yellow. No appetie. Breathing normal. Temperature 96, pulse 80. This dog at this time had not been exercised at all but was brought to my place in a car.

My diagnosis was this, that the use of the flea soap which seems to contain much of a crude coal tar product was taken up in the skin of the dog and conveyed from there to the liver which could not eliminate it fast enough and also the kidneys and by being stored up in these organs thoroughly poisoned the dog and caused his death in the afternoon of July 9th. An autopsy was out of the question. Please give me your views on this.—B. W. H., Ohio.

Reply: No poison could be detected in the soap, except the usual contents of coal tar products, however, from the symptoms described I think the soap may contain a considerable amount of crude carbolic acid. The dog is especially susceptible to its toxic effects as well as to refined phenol (U. S. P.) I have known of dogs being fatally poisoned by being washed with a two per cent solution of phenol. The symptoms that you give resemble those of Phenol poisoning quite closely.

ITCHY LEGS OF HORSES

Will you please tell me the cause of itching legs in horses, especially of the heavy draft type?—A. R. Y., Ontario.

REPLY—Itching legs in horses is due to one or two causes, both, however, yielding to the same treatment. One cause is the horse louse, which species is very small and found only with the greatest difficulty. It is inclined to inhabit the heavy, thick hair of the legs, and rarely tends to get above the hocks or knees, unless carried to other parts of the body by means of curry-combs and brushes.

The other cause is the equine mange mite, whose favorite location is the same as given for the louse, which usually does not spread over the body except by means of the curry-comb or brush.

This itching condition of the legs, as you no doubt have observed, is manifested in several ways. Some animals merely rub one leg on the other, while others instead of rubbing will stamp their feet violently on the floor as though they were trying to drive in a railroad spike, while some animals manifest the itching in both ways.

The ordinary antiseptics and parasiticides are not very efficacious in this trouble. For instance, compound cresol solution and similar coal-tar preparations seem to be of practically no value. Repeated washings with a 1 to 500 solution of bichlorid of mercury is of value, but acts slowly, sometimes requiring from one to two months' treatment. The treatment that has given the quickest and best results is a mange lotion, which is applied freely and with considerable friction after clipping the hair from the legs up to the hocks or knees according to which are affected. This lotion is made up of one part of oil of tar, one part of crude oil and six parts of liquid petrolatum, white rose neutral oil, which can be obtained from the Standard Oil Company, is cheaper and equally satisfactory.

This is to be freely rubbed into the legs and repeated about three times at five-day intervals.

BLACK TONGUE IN DOGS

Please give treatment for black tongue in dogs.—C. W. F., Alabama.

REPLY—When the case is received early, the first thing to do is to give them subcutaneously a 5, 7½ or even a 10 grain dose of sodium cacodylate. Then put them on one of the following two mixtures:

No. 1 ℞

Iod. pulv.....Gr. j
Petrolati liq..... ℥ j
M. ft. sol.

Sig. Teaspoonful every four hours.

No. 2. ℞

Hydrarg. chlor. mitis.....Gr. ij
Quin. culph. .....Gr. xv
Phenylis salicyl. ..... ℥ ss
M. ft. caps. No. XVI.

Sig. One capsule every three or four hours.

I have been unable to decide which gives the better results. Another prescription that I have not yet tried, but which looks good is

recommended by Dr. G. W. Browning of La Grange, Georgia, and is as follows:

No. 3. ℞

Specific tr. rhus toxicodendron	M xv
Specific tr. echinacea	ʒ ss
Glycerini	ʒ ss
Aq. qs ad	ʒ iv

M. Sig. One teaspoonful every two hours until improvement is marked, then every three or four hours.

Dr. Browning claims he has reduced the mortality from 75 per cent to twenty-five per cent by the use of this treatment.

If the animal is vomiting, it will be necessary, before you can administer any medicine to him, aside from the sodium cacodylate, to settle his stomach, which I do by the administration of:

No. 4. GASTRIC SEDATIVE

℞

Phenolis	M iv
Tr. opii camph.	ʒ ij
Bis. subnit	ʒ ij
Glycerini	ʒ i
Aq. cinnamomi qs ad	ʒ ij

M. Sig. One to two teaspoonfuls every two or three hours. If vomited, repeat immediately.

During the progress of the disease, it is of course necessary to be very careful regarding the diet. While the animal is sick, he should receive such food as eggs beaten up with milk, varied somewhat with ice cream if he will eat it, and some of the baby foods such as Nestles or Mellens, made up the same as for the human baby. When they are recovered from the attack, a careful diet should still be prescribed. At this time, however, raw meat ground up should be fed for two weeks, after their apparent recovery.

PRIMARY AND SECONDARY CHOKE

I would like to see a complete discussion of "choke" in animals, especially in the larger animals. I have been unable to find in veterinary books many very good discussions on the occlusion of the esophagus with foreign bodies or food masses. The following are two cases which I have been called to see recently, both of which terminated fatally:

Case 1—On the night of October 5 I was called to the North Georgia Fair Grounds where a fair was to start next morning. The patient was a small trick pony, and had just been unloaded from a stock car along with the other show animals the afternoon before, and appeared a bit sluggish and tired as they had been loaded two days before and had been on the road that long without food or water.

All the animals were turned into a small grass lot and this pony was seen to nibble at the grass for a time and then go to the trough. He drank a few swallows of water, and immediately went away and lay down and showed signs of abdominal pain.

When I arrived I found the animal standing. There was severe twitching of all the muscles of the body, especially those in the pectoral and shoulder regions. The pulse was somewhat weak, but regular and of normal beats. The temperature was normal, and respiration slightly accelerated. Just a few minutes before my arrival the animal broke out with a profuse cold sweat over the entire body, but did not appear very weak at that time. The owner had given one-half ounce of spirits of nitre before my arrival.

My diagnosis was withheld, but I gave the animal one-half ounce of ether in one pint of bland oil, which the animal seemingly swallowed with difficulty, but at the time I thought it was due to the stubbornness of the animal.

During the next hour the animal appeared much weaker and assumed the recumbent position and was unable to rise. Soon he began to show blowing, snorting symptoms as if trying to blow something out of his nostrils, and the owner told me that he had showed these symptoms previous to my arrival. I then administered one-fourth grain of arecolin subcutaneously and made a rectal examination and found the bladder enormously distended; so I catheterized the animal, it being a male. The pony now appeared in much pain and distress for the next two hours, with frequent snorting and blowing signs, but was still able to hold up its head, and unable to regain its feet at any time. After the effects of the arecolin had passed away, the animal seemed to rest very well for one hour or more, but appeared to get weaker and weaker, developing a marked dyspnea, being especially expiratory in character, and the temperature rose to 105 degrees F. There were still present severe twitching of the muscles over the entire body and the animal was soon delirious, thrashing about frequently with intervals of resting spells.

By daybreak the animal was seemingly all but dead, lying out-stretched, temperature 107 degrees F., and marked pumping motions of the flanks in an effort to get air, as the dyspnea was very marked at this time. The animal

continued to get weaker, lying out-stretched, and died as if in the last stages of pneumonia, about noon on October 6.

Post-mortem examination revealed nothing abnormal other than an occlusion of the esophagus with green moist grass extending from the pharynx to about six or eight inches down the esophagus. I thought of choke more than once, but was unable to pass the stomach tube, as the animal was too small for my large size stomach tube, which I had tried to pass several times.

Case 2—I was called early on the morning of October 23 to see a seven-year-old mare mule which had been sick since about 10 a. m. the day before. The owner had given one pound of salts with a small amount of soda in form of a drench, and he said the animal swallowed with difficulty at that time, which was about noon the day before. The animal was normal when put to work early that morning, but was given a feed of syrup cane hay about 10 o'clock that same morning.

On my arrival I noticed she did not eat very much of the hay, but tried to eat some green grass, and was unable or at least she did not drink any water, even though she tried only once. The animal was turned into the lot where she remained all that day and night, and when I arrived there was evidence that the animal had spent a very bad night, being up and down frequently, and there were numerous decubital sores on the body. She would look around at her side often, and it was difficult to keep her on her feet long at a time. Rectal examination revealed a hard mass in the right flank, which was thoroughly massaged and numerous injections of warm water were given.

My diagnosis was impaction of the cecum. Upon attempting to administer an aloetic purgative in the form of a capsule, the animal fought desperately, falling down; but the capsule was retained some place, as it was not seen to come back. The animal showed severe uneasiness and the muscles of the body began to twitch all over.

The temperature was subnormal, being about 96 degrees F. I gave one-half grain of arecolin, following which the animal showed intense pain and respiration was much increased and dyspneaic in character, but the animal remained standing all the while. In about one hour I passed the stomach tube, or at least tried, but am not quite sure yet whether it went into the esophagus or not, as air was emitted from the tube every time the animal expired. But this seemed to give complete relief and the animal drank about three or four gallons of water for the first time. I left the animal and told the owner that I thought it would be all right.

At this time the pulse, respiration and temperature were normal. The mule remained in the lot all day, without eating anything, being droopy and sore in appearance, but about dark that night she fell while walking about and was dead inside of five minutes. The owner said it died as if it were choking to death. Post-mortem examination was not held.

Was the diagnosis of choke correct? Please give your method of treating choke and detail of passing the stomach tube. The two cases described in the foregoing are the only two that I have had like this recently, and I would like you to tell me what you think of them.—J. H. M., Georgia.

REPLY—In the first case described the choke was secondary and not primary. During the world war, veterinarians gained a vast amount of experience in various lines and especially in regard to the feeding and watering of animals that had gone for a considerable period without food or water and which arrived at their destination not only half starved, but exceedingly thirsty and very much fatigued.

The pony, according to your statement, had gone 48 hours without food or water. This put him in the same category as thousands of animals used in the army, and under which conditions it was found that when animals had gone for as long a time as 36 to 48 hours without food or water, that when unloaded and allowed to go to a watering trough, they oftentimes, after two or three swallows of water taken immediately upon unloading, caused death in hundreds of instances from apparently two different series of pathological conditions. That is, either from a generalized convulsion or from the most intense enteric pain, which undoubtedly was due to violent convulsions or spasmodic contractions of the intestines, followed in some instances, if the animal lived long enough, by enteritis.

In many of the cases of the latter type, the bacillus enteritidis were found. Many of these animals, if they were not immediately seized with an attack as above described, upon going to the hay pile, would after swallowing a few mouthfuls of hay, show symptoms of choke as described by you. However, it was drinking the water while intensely fatigued, or in

other words, while the organism was surcharged with fatigue toxin, that brought on the climax, resulting in a paralysis or a spasmodic contraction of the esophagus (esophagismus), which caused food to be retained in it.

Referring to the second case, which had been dosed by the owner with one pound of salts, this was probably a case of indigestion and colic of rather a common type. Death was likely due to heart failure from the formation of an ante-mortem clot in the heart, an all too common termination of such cases twenty-four to thirty-six hours after the subsidence of the acute intestinal pain.

CHRONIC RHEUMATIC INFLUENZA IN A MARE

In the July edition of VETERINARY MEDICINE, under "Pointed Discussions on Live Topics," I noticed an article on "Influenza with Complications." I am treating a five-year-old mare which had what another veterinarian diagnosed as lung fever. This was about two months ago. Since recovery the mare has become somewhat emaciated, and the owner states that the joints, notably the hock joints, swell to large proportions. The fetlocks were first affected. The mare continues to drool greenish saliva from the mouth. The color is probably due to the feed.

I have been injecting 2 c.c. of sodium cacodylate subcutaneously daily, and have prescribed 3 to 5 drams of sodium salicylate in a drench daily. I have also tried blistering. What further line of treatment would you suggest? Are the dosages above mentioned large enough? Would you advise feeding of grain in any amount? —F. W. B., Idaho.

REPLY—The mare is probably suffering from chronic rheumatic influenza. The pneumonia, if it was present, has undoubtedly passed away or perhaps it has also assumed a chronic form. As to this, you will have to be the judge.

The drooling of a greenish colored saliva is due to a chronic inflammation of the pharynx, or perhaps of the larynx. You do not say whether the animal coughs or not. Swelling of the joints is undoubtedly due to collateral infection, giving rise to rheumatoid manifestations.

As to the treatment, you have been on the right track, but the doses are entirely too small. Inasmuch as you did not give the weight to help determine the proper dosage, the right dose would be from 45 to 60 grains of sodium cacodylate dissolved in one ounce of water, subcutaneously, repeated every fourth day.

Your mention of a 2 c.c. dose of sodium cacodylate tells nothing, as you do not state how much sodium cacodylate there is in the solution. Instead of sodium salicylate you should give salicylic acid in one-half to one ounce doses repeated every four or not more than every six hours, the size of the dose depending upon the weight of the animal. Salicylic acid may be administered in the form of an electuary; that is, mixed into a paste with syrup or molasses. If the patient was in your immediate charge it could more conveniently be administered in capsules, but the administration of an anti-rheumatic once daily is not sufficient.

Inasmuch as the patient is in an emaciated condition, advise the feeding of grain twice daily, one feed of oats, one feed of corn and every night a bran mash containing some salt. Exercise, running in a paddock or pasture is also advisable.

MUSCULAR INCOORDINATION IN A MARE

I was called to see an iron-grey mare which the owner thought was poisoned. This animal had a colt two or three months old. She has been in the owner's pasture since May and has been seen every day. A week ago they caught the mare for a judging contest, but she was not taken from the owner's place, and immediately afterwards was taken to the pasture again. At that time the owner noticed she was slower than usual, but did not think anything of it until he noticed this mare showing a staggering gait in the hind parts. I found her normal while standing, except a very small bunch on the withers, which looked like the beginning of a fistula.

When the mare was lead around in the yard she did not seem to have controlling power over her hind parts. At times when walking she would start to fall and then catch herself before falling, and at other times she seemed to walk better. It appeared that she took longer strides with her hind feet than was natural. The pulse was normal; mucous membrane normal; temperature normal; pulse became slightly increased when the animal was under exertion; feces and urine were normal.

The owner stated she had lost in weight considerably while in pasture. This mare is a

valuable animal. The colt is in good condition, even though nursing its mother.

From the symptoms stated, do you think it to be caused by strongylus armatus?—I. W. M., Iowa.

REPLY—This animal was undoubtedly suffering from a subacute or chronic form of myelitis due probably to a new growth.

Administer hexamethylanamine (urotropin) in two-dram doses three times daily; also potassium iodid in two to three dram doses, according to the weight of your patient, three times daily. The prognosis is unfavorable.

HOW TO USE A STOMACH TUBE

I have never used a stomach tube, because I never met a man that cared to use one. I have been told that they were too clumsy in passing, that there was too much trouble in restraining the horse, too much hemorrhage, etc. But I find lately that the British practitioners are using them very extensively with their saline therapy, and I wanted to ask whose make or what kind is the most satisfactory. I wrote Hausmann and Dunn recently. They have them 10 feet long with return flow. But I was not satisfied to choose one from a catalog. I presume they are usually passed through the nostril.—R. J. N., Ontario.

REPLY—You will find the methods of using both the single and the double stomach tube, as well as the choice of passage whether through the nose or through the mouth, fully described in "Colics and Their Treatment," published by the American Veterinary Publishing Co., 9 S. Clinton St., Chicago, the price of which is $1.50. These matters are discussed in the chapter entitled "Surgical Treatment of Colic in Horses," by L. A. Merillat.

The stomach tube is not absolutely necessary, for a horse can be relieved of acute gastric flatulence as quickly with one ounce of salicylic acid administered in a capsule, as can be done with a stomach tube, and with a whole lot less messy work for the doctor and less distress to the patient.

In passing the stomach tube through the nose one is apt to bruise and erode the lining of the nostril, causing quite a severe hemorrhage and in some cases a somewhat persistent nasal irritation. It is better to pass it through the mouth, which requires the use of a speculum. When the stomach tube is passed through either passage it should be passed carefully back to the throat, with the fingers within five or six inches of the lips or the nostrils, and wait until you feel the animal make an effort at swallowing; then quickly pass the tube. This will aid it in entering the esophagus and prevent the tube going down into the trachea. Even when introduced with the utmost care, you should assure yourself by listening and smelling the end of the tube, as to whether it has gone down into the lungs or into the stomach. Many horses have been killed by flooding the lungs with water or some other solution.

TREATMENT FOR CANINE DISTEMPER

There has been an epizootic of canine distemper all through this locality for the past month, and it seems to be of a severe type, while in other years it has been mild. While the mortality is not high, nevertheless quite a number die or are destroyed following complications. Chorea seems to affect quite a few, and pneumonia comes in for its share. Some time ago I treated a spaniel which about two weeks previously had recovered from an attack of distemper. There would be twitching of the muscles of the nose and mouth, followed by profuse salivation, and then a return to normal when the dog would be at perfect ease. The attacks continued for two days, the intervals of time between becoming less until finally the animal developed symptoms of meningitis, yelping at the top of its voice. Hypnotics failed to put the animal to sleep or to have the least effect other than to cause a dilatation of the eyes. The dog died on the second night. Could this condition have been due to the previous attack of distemper? Was it a form of chorea? It was an eight-month-old spaniel, and at present I have a ten-month-old terrier under observation showing the same symptoms but not so severe. How would one treat such a condition?

I have been using intestinal antiseptics and Fld. ext. echinacea in ordinary cases of distemper, using in conjunction a bacterin and sodium cacodylate if the dog is a valuable one. Is this a good treatment and is distemper serum of any reliable value? Would you recommend the removal of the thyroid gland after medicinal treatment has failed to reduce it?—C. H. C., Nebraska.

REPLY—The nervous twitchings of the spaniel, being of an intermittent nature, were not due to cholera, but were epileptiform convulsions preceding an attack of meningo-encephalitis, which is nearly always fatal when it follows distemper.

The use of distemper serum and vaccine is not entirely satisfactory, although many veterinarians think highly of the biologic feature in the treatment of canine distemper.

When the thyroid gland is so large that it causes distress to the patient, the animal is usually so old that removal is not to be recommended, as by this time the dog's heart is usually seriously affected and this makes the operation a very hazardous one.

If you have not tried the thyroid gland treatment given in the form of tablets, made by Armour & Company, Parke, Davis & Company, or any other reputable manufacturer, it is suggested that you administer these in from two to five grain doses three times daily. In dogs older than 1½ or 2 years, the treatment may have to be persisted in from three to five months, and after the goitre is completely removed, it is necessary, as long as the patient lives, to administer two or three tablets per week to prevent the gland from again enlarging. These tablets are conveniently administered, as a dog will eat them from the fingers, off the floor or when crushed and mixed with their food.

TREATMENT OF PURPURA HEMORRHAGICA

I have under treatment a sorrel mare, 11 years old, that has developed a persistent edematous condition of all extremities, and extensive edematous swelling of the abdomen. When first called to this case, petechial hemorrhages were noted on the mucous membrane of the nostril, and although these hemorrhages have disappeared the swellings persist and are becoming hard in character.

The initial treatment consisted of potassium dichromate and tincture of iron chlorid, which produced favorable results for a while, but did not continue longer than ten days. In conjunction with this treatment, I am now using potassium iodid and have recommended a laxative diet.

This case is one of months standing, during which time the animal has maintained a good appetite and exercises freely in a small inclosure, never having evidenced any discomfort. I might also add that this animal is pregnant.

My diagnosis was purpura hemorrhagia, and I would appreciate your criticisms and suggestions in regard to diagnosis and treatment.—F. D. M., Illinois.

REPLY—The diagnosis and early treatment were correct, providing the dosage was correct. However, after the petechia cleared up the patient would have done better had the dichromate of potash been dropped, and the patient put on two-dram doses of rectified oil of turpentine with half-ounce doses of tincture chlorid of iron and about one grain or a grain and one-half dose of strychnin sulphate three times daily.

Tincture chlorid of iron and turpentine act as vascular tonics and stimulants, especially toning up the walls of the nutrient arterioles as well as stimulating the functional activities of the kidneys. This, with gentle exercise and a liberal nutritive diet, would have brought about more prompt recovery of the animal unless there was an endocarditis present which might be the cause of the excessive edema.

TREATMENT FOR EPIZOOTIC LYMPHANGITIS

I have been using one ounce of potassium iodid and two drams of red iodid of mercury to one quart of water, giving one tablespoonful twice a day in the feed for epizootic lymphangitis. I have cured 20 cases or more with this treatment, but it is slow. I open up some of the abscesses that are deep seated. Have you a better treatment?

How do you differentiate speropta mecrocis from epizootic lymphangitis, and what is the difference in the treatment?

I am treating a case of what I diagnosed as epizootic lymphangitis that is yielding very slowly to the above treatment. What is the trouble? Is my treatment poor, or am I wrong in my diagnosis? This case is on the hind leg of a horse, which swells up at night and goes down upon exercise. There are a lot of nodules or lumps that open up, discharge for a while, and then dry up. They are mostly on the inside of the leg. I have opened some of the lumps which contained pus of a greenish cast.—W. G. S., Pennsylvania.

REPLY—If the mixture is really curative you will get quicker results if you will increase the dose of potassium iodid to two drams (or more for horses weighing over 1500 pounds) three times daily. You have been giving only 7.5 grains twice daily (a moderate human dose). Your dose of the red iodid of mercury is sufficient in size, but should be administered three times daily. The two drugs form what is termed a double iodid. However, in the condition with which you are deal-

ing, this combination of drugs is not of much value, being too slow.

Your report is so meager that it is impossible to make a definite diagnosis. However, you are dealing with either "lymphangitis ulcerosa equorum (ulcerative inflammation of the lymphatics of the horse)," the cause of which is said to be identical in all of its characteristics with the bacillus of pseudotuberculosis of Preisz and Nocard, or else you are dealing with "epizootic lymphangitis," said to be caused by a yeast fungus known as the Cryptococcus farciminosus and also as the saccharomyces farciminosus. In most instances these two diseases are so similar that only a microscopic examination enables one to differentiate between them.

As to "speropta mecrocis," is it possible that you mean sporotrichosis? This means an infection with sporothrix, a condition identical with epizootic lymphangitis, from which it can only be differentiated microscopically. The latter should yield to the same treatment.

After trying a great variety of drugs and combinations of them, the following has given uniformly good results, with recovery in from ten days to three weeks, according to the severity of the cases.

℞

Arseni trioxid .....ʒ jss
Cupri sulph. pulv.....ʒ iv
M. et div. in pulv. No. xxx

Sig.—Give one powder thoroughly mixed with the feed three times daily.

If necessary to hurry matters, incise the nodules. All discharging nodules and the entire affected area should be thoroughly washed several times daily with a good antiseptic solution; then swab the ulcers with full strength tincture of iodin and apply a powder of an absorbing nature to prevent the pus, which is usually profuse, from flowing to the floor of the stable, drying and possibly infecting other horses. For this purpose use something like the following:

℞

Ac. borici pulv.
Zinci oxid pulv.
Amyli pulv.
Carbo ligni pulv. aa.....ʒ iv

M. Sig.—Apply several times daily.

The affected animals should be isolated and their previous quarters thoroughly scrubbed with lye water and disinfected.

SUNFLOWER SILAGE PROBABLY TO BLAME

I would appreciate a suggestion in regard to two cows of a herd of 50 well-cared-for animals, fed on sunflower silage (no corn silage included in feed).

The first cow apparently had a severe impaction with no manifestations of pain; there was complete absence of peristaltic sounds, and a slight watery discharge from the bowels with no streaks of blood. The eyes were bright. The cow lived about one week, remaining on her feet until the last day, when she was unable to rise and lay groaning.

When first taken sick, this cow drank plenty of water, but refused all food after the second day. Her temperature, pulse and respiration remained normal throughout the course of the disease. The temperature was 101.2° F., just before death.

The autopsy showed absolutely no lesions. The contents of the stomach were semi-liquid. One week later a second cow was taken sick, showing the same symptoms as in the first case, and dying after seven days. An extremely thorough post-mortem examination showed every organ apparently normal.

The treatment consisted of barium chlorid-tartar emetic compound given at regular intervals; two to four quarts of mineral oil per dose administered on alternate days; epsom salts in one-pound doses with gamboge and ginger given freely; large quantities of lukewarm water orally.

Could these have been cases of hemorrhagic septicemia in chronic form, without intermittent temperature? I am very familiar with the acute form of the above disease, as it is prevalent in this vicinity.

Rather, do you not believe that death was caused by over-feeding of sunflower ensilage, causing a toxemia similar to forage poisoning, yet not identical with this disease? Could the disease have been the so-called "corn stalk disease?" It could not have been true forage poisoning, in as much as there was no paralysis of the muscles of deglutition. Could it have been botulism? —F. C. S., New York.

REPLY—Answering your last question first—No. I know of no experimental evidence that indicates cattle are susceptible to botulism, and there is a great deal of very positive clinical evidence that cattle are not affected by the botulinus toxin when ingested.

Your other conjectures as to the ailment of these cows are as good as my own. You are

wrong, however, in your assumption that paralysis of the muscles of deglutition is a constant symptom of forage poisoning—it is, however, a very common symptom.

Experiments conducted at least at two of the state agricultural experimental stations have shown that sunflowers should not be used in silage to an amount greater than one-third of the total ingredients.

PARTURIENT LAMINITIS IN MARES

I am writing to you for information regarding several mares, some in foal and some with sucklings. These mares seem to have laminitis. They are stiff on all four limbs. They eat and drink well. One mare was up when I first saw her, but went down in a few days and is able to stand on her feet only by the aid of a sling. I have three such cases at one place and three at another. All are in about the same condition. These horses have been fed on millet hay this winter. Please give diagnosis and treatment.—E. R. L., North Dakota.

REPLY—The case you describe is known as parturient laminitis. Such cases may occur previous to or after parturition. The treatment for them is just the same as for the usual type of laminitis, with the exception that when postparturient you should make a careful examination of the uterus, going as high up in the horns as possible, for portions of retained placenta, as this type of laminitis is commonly due to auto-intoxication from absorbed products of decomposed placenta.

In the way of general treatment for laminitis, the following is suggested: If the cases are received early the intestinal tract should be cleared with a quick-acting purgative, preferably eserin sulphate, which is much more thorough than arecolin. Also, if the case is gotten early, removal of sufficient blood to soften the pulse by bleeding at the jugular is recommended in all cases except in the parturient animal. In these venisection may prove dangerous.

Medicinally, it is recommended that alum (not burnt alum) in two ounce doses, administered in capsules, be given at intervals so that the patient will receive eight ounces during the first 24 hours. The alum treatment should be kept up until the animal is entirely well. Then it is good practice to blister the coronets of the affected feet and put the animal on two to three dram doses, three times daily, of potassium iodid for about a week or ten days to insure the complete absorption of all inflammatory exudate.

Locally, during the acute stage, leave the shoes on if it is a plain open shoe, although have them loosened up. This is contrary to the usual rule which calls for the removal of the shoes. Then large packs made of old woolen cloths or an old woolen blanket are applied and kept wet with ice water if possible. A good bed is provided to encourage the animal to lie down. It is deemed beneficial to exercise the animal, walking it from 15 to 60 minutes two or three times daily to stimulate the circulation of the blood in the feet.

BOTRYOMYCES IN A STALLION

I have an imported Clyde stallion fourteen years of age that has some growths on the front coronets that resemble carbuncles. They vary in size from the size of a bean to the size of a pullet's egg and larger. They are becoming fissured between and are beginning to disturb the connections of hoof and band as well as interfering with locomotion. Let me say that the hair has never been disturbed any more than turned aside with the growths, which come through with a top on like a wart. In some places the matrix seems to be involved and beginning to slough under the hoof band. What is the best application and best method to pursue?—R. J. N., Ontario.

REPLY—It is probable that the imported Clyde stallion is infected with botryomyces, giving rise to what is termed botryomycomata, for which administer to your patient iodid of potash in about 2½ or 3-dram doses, three times daily, according to the weight of the animal, which you do not give.

Locally, treat those that have sloughed with tincture of iodin full strength two or three administrations, and dilute with an equal amount of water afterwards. Had you mentioned the character and color of the discharge, this diagnosis might be a little more positive. However, this treatment will prove beneficial whether it is as mentioned in the foregoing or a case of furunculosis, as it is apparently one of the two, and more possibly the first named disease.

Resolve to cultivate a cheerful spirit, a smiling countenance and a soothing voice. The sweet smile, the subdued speech, the hopeful mind are earth's most potent conquerors, and he who cultivates them becomes a master among men.—Elbert Hubbard.

Pointed Discussions of Live Topics

By READERS of VETERINARY MEDICINE

Laminitis With Metastatic Blindness In a Horse

Speiser, of Nurnberg, records the case of a chestnut gelding, twelve years old, that had been in the possession of his owners for six years without previous illness. He came under treatment on February 9, then showing complete loss of appetite, a temperature of 103.6° F., and 86 heart-beats and 34 respirations per minute. The conjunctivae were dirty orange-red, the expression was fixed and anxious; the respiration was superficial and painful, but showed no other special feature. The intestinal movements were active, and the horse was sweating. He could only be moved with great difficulty, trying to lift his feet as little as possible from the ground. The muscles of the hind-quarters were hard and tense, and they seemed—so far as the great pain in the feet permitted this point to be ascertained—to be painful when energetically palpated.

The history was that the horse had suffered three days before from an intestinal catarrh with dirty stinking diarrhea, and had not then undergone veterinary treatment.

Speiser ordered 80 grammes of aceto-salicylic acid to be given four times daily, the shoes to be removed, and cold packings to be applied to the feet.

This treatment is often successful in slight and moderately severe cases of laminitis, and Speiser thought the horse too weak for phlebotomy. It was found impossible to remove the hind shoes.

Next day the condition was unaltered. The thoracic organs were normal, the appetite was bad, and thirst was intense. The horse sweated violently and did not lie down.

The day after (February 11) Speiser was told on arriving that the horse had become blind during the night, and, to his great astonishment, he found that this was true. The pupils were dilated to the maximum, and showed no reaction to artificial illumination. On the other hand, neither photophobia nor lachrymation were present. Seen from a distance, the eyes had a greenish lustre. The aqueous humor was very turbid from the presence of flaky exudate, and the case appeared very similar to a severe one of periodic ophthalmia, except that the pupils, instead of being contracted as in that disease, were dilated.

From the absence of photophobia and lachrymation, the idea of an affection of the whole uveal tract (irido cyclo-choroiditis) could not be accepted, but the marked green lustre indicated an opaque condition of the crystalline lens. Speiser did not attempt ophthalmoscopic examination of the back of the eye, on account of the great turbidity of the transparent media. But all the demeanor of the horse when examined—the absence of reaction to light and to threatening movements of the hand, and the behavior when food was held before the animal—showed that both eyes were completely blind. It was thus evident that the retina and optic nerve must also be involved in the morbid process.

Moller, in his Augenheilkunde (page 70, 3rd edition) describes a case of idiopathic iritis in the horse which existed almost coincidently with muscular rheumatism. In many points the symptoms of this case show a great similarity to those of the one just recorded, but in Moller's case the background of the eye was not implicated in the process.

Unfortunately, Speiser could not follow the progress of the case. On account of deterioration in the general condition and increase of the pedal and muscular pains, the horse was slaughtered the day after blindness set in. Speiser says nothing of any post-mortem examination.

In conclusion, Speiser refers to the question or differential diagnosis, especially with regard to the possibility of influenza. He mentions the latter disease in particular, partly because of the variety of its complications, and partly

because during 1912 and 1911 he treated a great number of cases of influenza with conspicuous participation of the ocular and locomotor apparatus in the symptoms. However, the absence of photophobia, of any affection of the conjunctiva, and of oedemas of the skin and limbs, all negative any connection of influenza with the case. So also does the fact that five other horses were standing in the same stable, and no other cases of illness appeared.

Speiser regards the laminitis as an "intoxicationlaminitis," and remarks that the connection between the previous intestinal catarrh and the laminitis is easily explained. He thinks that by appropriate treatment (disinfection of the intestinal tract) the generalization of the disease might perhaps have been averted.—Munchener Tier. Woch, Trans. in Veterinary Record.

TETANUS IN A BULL

On the morning of February 8, of the preceding year, a well-nourished grey C. B. bull belonging to a washerwoman was with great difficulty walked down to this College Hospital in an advanced stage of the disease, tetanus. The owner brought it to be treated for adverse after effects of castration by the mulling method.

On admission the animal was very tympanitic, the temperature was 99° F., the respiration was labored, the eyes were prominent, the back was arched, with slight protrusion of the head and neck, the gait was straddling, there was preference for the recumbent position, and he was restless.

On examination the mulled testicles were found to be highly inflamed, red, tense, hard and painful with a few deep abrasions on the skin. The animal had been reported to have been ailing for a week or ten days.

Passage of a stomach-tube, followed by a drench containing an ounce of turpentine with a pint of linseed oil, and a soap and warm water enema, were successful in relieving the tympany. Later on, an opening by an incision of about two and one-half inches on both the scrotal sacs was made, from which a considerable amount of sero-sanguinous discharge escaped. All degenerated and sloughed tissues were removed, and the cavity douched out thoroughly with 1 to 20 lotion phenol. The part was painted with tincture of iodin. Quiet and freedom from the attack of flies were obtained by keeping the animal in an isolated and dark place.

In the evening the wound and scrotal cavities were again dressed in a similar manner as in the morning, but the animal showed much exhaustion without any rise in temperature, which was 100.4°.

Next day the animal was unable to move. All the skeletal muscles were stiff and prominent. Sudden touch brought on violet twitchings and tremblings, chiefly of the superficial muscles. The eye-balls were sunken, with slight protrusion of the membrana nictitans. The jaws were locked (trismus), but a quantity of frothy saliva flowed from the mouth. If the head was moved the whole body moved with it. The tail also was stiff. The temperature on this morning was 102° F., and in the evening 101° F. Rectal injection of 2 oz. of chloral hydrate afforded some relief.

On the third day, the symptoms were gradually aggravated in their intensity, and the animal became extremely exhausted. Thermometer showed reactions 100.3° F. in the morning, with 101.3° F. in the evening. Re-administration of chloral hydrate in similar doses was resorted to as on the previous day to bring relief by inducing sleep, but this was of no avail.

On the following day, at about 8 a. m., the animal succumbed to the disease, after a continual attack of convulsion for two hours.

This case is only interesting from thhe scientific point of view that tetanus in ruminants is of rare occurrence when compared with that of the equidae.—H. C. Ganguly, G. B. V. C., Bengal Veterinary College, Calcutta, in The Veterinary News.

LATE READINGS PREFERABLE IN INTRADERMIC TESTING.

In the report of the New England Bovine Tuberculosis Eradication Conference, I note on page 61 of the August issue of VETERINARY MEDICINE that I am quoted as preferring observations following the intradermic tuberculin test at the 48th and 96th hour.

I have always advocated two readings in intradermic testing, but I prefer that the readings be made at the 72nd and the 150th hour, or at least that the first readings be made at the 72nd hour and the last reading not earlier than the 120th hour.

G. E. CORWIN,
Deputy Commissioner on Domestic Animals, Hartford, Conn.

COST OF MILK PRODUCTION FORMULA

The Dairy Section of the Michigan Experiment Station has made an extensive study of the cost of milk production covering a period of nine years. Investigations have been carried on in Kent, Allegan, Ottawa, Livingston, Ingham, Macomb, Oakland, Wayne and Monroe counties on 225 farms, representing 3,730 cows. The milk produced on these farms was either for city trade or condensing purposes.

A summary of these investigations is presented in the following formula which gives the number of pounds of feed and the number of hours of labor as well as the percentage of overhead costs in terms of feed and labor cost required to produce 100 pounds of milk.

the average prices of feed and labor prevailing in his community for a period of time, as the amounts of feed and labor represent the amounts required for average yearly production. All prices of home-grown feeds should be determined at what the feeds are worth in the farmer's barn, including the cost of any necessary grinding of the grains, while purchased feeds are valued at their actual cost.

Average yearly farm labor prices should be the basis for figuring the cost of man labor. The price of horse labor is based on the cost of maintaining a horse throughout the year, this will range from 15 to 20 cents per hour's work on most farms. The transportation charge may be figured to the shipping station or the receiving plant. All the other costs

A FEED AND LABOR FORMULA FOR FIGURING THE AVERAGE YEARLY COST OF PRODUCING 100 LBS. OF MILK.

	Amount	Price	Cost
FEED:			
Home grown grains	11.0 lb.	@ $	$
Commercial feeds	15.6 lb.		
Hay	31.1 lb.		
Other dry roughage	15.9 lb.		
Silage (corn)	114.5 lb.		
Other succulent feed	7.0 lb.		
Bedding	12.8 lb.		
Pasture	.3 wk.		
LABOR:			$
Manual labor	2.23 hr.		$
Horse labor	.10 hr.		
Transportation: Hauling Milk			
OTHER COSTS:			
1. Taxes, interest, insurance and depreciation on buildings, cattle and equipment			
2. Losses due to death			$
3. Veterinary service and drugs		=24.77% of feed and labor costs	$
4. Bull costs			
5. Miscellaneous costs			
6. For management and risks			
Net cost of producing 100 pounds of milk			$

In figuring the above, such credits as manure and calves have been deducted from the overhead percentage factors.

To determine the cost of milk production for each month, multiply the average yearly cost by the percentage of deviation factors given in the following table.

To apply this formula the farmer should use

are based on the percentage of feed and labor costs. In order to determine the cost of 100 pounds of milk, first determine the feed and labor costs, then multiply the results by .2477 which will give the overhead cost. The sum of feed, labor and overhead costs is the cost of production.

At the bottom of the table percentages of

PERCENTAGE OF DEVIATION FACTORS.

January	112.7	April	100.8	July	85.2	October	115.4
February	108.6	May	75.8	August	108.3	November	121.9
March	97.6	June	61.5	September	115.8	December	120.8

deviation factors are given which show the variation in cost for the different months.

To determine the monthly costs multiply the yearly cost by the percentages of deviation factor for the particular month desired.

THE VALUE OF POST-MORTEM EXAMINATIONS

It is very surprising how little importance is attached by many men to the making of post-mortem examinations. They involve a certain amount of trouble, they may even expose mistakes, and sometimes the client refuses his permission in the case of a dog. On the other hand, they afford the only chance of confirming or correcting the diagnosis and understanding of the case, and they provide a fund of experience that nothing else will furnish. It is a good maxim, when one requires advice and help in diagnosing or treating a difficult case, to consult the man who invariably makes a post mortem examination in his fatal case where possible. Horse-slaughterers can generally suit the convenience of the practitioner who wants to see his fatal cases opened, and the time and trouble involved are well repaid in increased knowledge and power in dealing with the many difficulties so constantly arising in practice.—H. A. Woodruff in The Veterinary News.

PHYLACOGENS AND STRANGLES

In June of this year I had an outbreak of strangles, one horse after another going down at intervals until the middle of July, and having lost two horses—one from purpura and the other from the bursting of a post-pharyngeal abscess into the trachea—I thought we were clear.

However, on August 2 another horse was affected with submaxillary and post-pharyngeal abscesses; the former of which I lanced, and the latter I burst by pressure, and on going through the stud (30 shires) with the thermometer I found four more with temperatures ranging up to 104 degrees F.

As harvest was imminent this was a serious matter for my client. I advised injecting with phylacogens (P. D. & Co.), and my advice was acted upon, viz., to inject all the horses as well as the symptomatic ones.

On August 6 I injected the whole of the horses on the farm, and in addition six four-year-olds up from grass, these latter before coming in contact with the others.

As a curative I gave the five affected horses 30 c. c. subcutaneously, and as a preventive 15 cc. to the in-contacts and the six horses up from grass.

The result was highly satisfactory. The horse (aged) with the abscesses commenced feeding the next day, and made an uninterrupted recovery. Convalescence was very rapid, and he was at work in ten days.

The horses with the elevated temperatures, dropped to normal, and were at work in three days, and of the rest, I have had no more cases, and they have just gone through a most strenuous harvest.

I am using phylacogens on a case of poll-evil. It is doing remarkably well.—The Veterinary Record.

CLINICAL EXPERIENCE NECESSARY TO AVOID MISTAKES

Lack of clinical experience is a fertile source of errors. Attendance at lectures and the most assiduous study of text-books cannot enable the most brilliant student to observe the phenomena of disease and to draw correct conclusions therefrom.

He must study cases clinically, and cultivate his powers of observation; of course, a good clinical teacher is a sine qua non in this study, otherwise he may see a large number of cases and not improve his knowledge.

When the junior makes mistakes, it is generally because he imagines that the cases he meets in practice should present the same clinical pictures described in the text-books. Also he is apt to overlook common symptoms in his search for what he considers are more important phenomena. A useful rule is first to search for evidences of common affections; when these are absent, then look for symptoms of the more uncommon diseases.

One of the first lessons learned by the young graduate when he leaves college is that he is liable to make mistakes and arrive at erroneous conclusions; also that "one thorn of experience is worth a whole wilderness of warning." Some learn this so soon, and with such serious consequences, that they lose confidence in themselves and err in the other extreme, i. e., they are afraid to give a definite opinion and attempt to explain the difficulties of diagnosis to their clients. From the commercial point of view this is a serious error, and many a reputation has been seriously damaged thereby.

The junior should remember that if he is liable to err, he is in no way different from others; all have had to "go through the mill" and commit their share of errors; moreover, the seniors also make mistakes, although they do not "own the soft impeachment," and are able to cloak their ignorance.

At times it would appear as if more knowledge were expected from the junior, and as if the slightest error were magnified, while the mistakes of the senior were overlooked.

"That in the captain's but a chloeric word,
Which in the soldier is flat blasphemy."—E. Wallis Hoare, F. R. C. V. S., in the Veterinary News.

VALUE OF DIAGNOSIS

Who can forget his first great lesson in the diagnosis of lameness, when he was confidently treating the back tendons or the shoulder, and after a few days found pus issuing at the coronet? The criticisms of the owner linger in his ears and he makes a solemn vow never again to neglect a careful examination of the foot, even though there are classical symptoms of another form of lameness present. But the good resolutions are only made to be broken, and the error is repeated in a future occasion, until the junior learns that the advice given by the late Professor Dick on the diagnosis of lameness is of more value than much reading of modern works on the subject. Then the first lessons in obstetrics do not leave pleasant recollections. We are not likely to forget the midnight calving case, when, after effecting delivery and going home very elated, the owner called in about an hour to say the cow was straining badly. How we gave explicit instructions to prevent this straining and next morning the owner came in to report that the cow had a second calf, which he had to get away himself.

Then we have a vivid recollection of the first case of dumb rabies that came under our notice. Having never seen a case of the disease before, we treated it for an affection of the throat, much to the danger of the owner, who was assiduously attending to our instructions and applying sundry medicaments to the pharyngeal region daily. And the errors in connection with the examination of horses as to soundness, would fill a small volume were we to describe them. Peculiarities of normal structures mistaken for diseases, amaurosis and cataract overlooked, lameness and shivering not detected, coarse hocks mistaken for spavins; in fact, errors committed with reference to every region so blatant that we must come to the conclusion it was due more to luck than to tact that we did not find ourselves figuring as defendant in a case for negligence. Perhaps the fact that we were not a mark for damages, influenced the clients in their apparent philanthropy.—E. Wallis Hoare, F. R. C. V. S., in The Veterinary News.

THE ADMINISTRATION OF MEDICINES

The different methods of administering medicines to our patients are well known to all practitioners of any experience. With changes in the materia medica, and especially with the introduction of the innumerable pharmaceutical preparations of the present day, the relative frequency of different methods of administration has changed. The giving of medicine by the mouth in the form of a drench is, of course, still common, but there is a more widespread realization of the risk involved than ever there was. In the case of a horse affected with any respiratory disease, many experienced practitioners will affirm that drenching amounts to malpractice, and the same may be said in the case of a cow unconscious from "milk-fever." Even if there were no danger there is always the certainty of dilution and chemical change in the stomach and intestine before absorption takes place, so that the desired action is often interfered with. Of course, when medicines are given by the mouth in order to act locally in some part of the alimentary tract, there can be no objection, but care must be taken that the object is achieved. To take an example, quinine is a bitter tonic and appetiser, but only when it comes in contact with the nerves of taste, so that to give quinine in ball or pill form effectively prevents it acting in this way. Again, salol is useful as an antiseptic when in solution, but it is only soluble in an alkaline medium, and therefore has no effect in the stomach. To reach other and further parts of the alimentary tract various methods have been devised, among them that of enclosing the active agent in a capsule of material resisting stomach digestion and only dissolved (with consequent freeing of the drug) in the small or large intestine. This method is particularly of value in the giving of vermicides. When sys-

temic effects are required and the medicine has to be absorbed, probably the best all-round method for oral administration is to give an electuary.

Another channel of administration is via the skin. This mode of entrance is useful in very few instances, and skin applications are usually intended for their local effects. In some cases absorption takes place fairly freely and the results are occasionally serious, notably in the case of a wide application of cantharides. In the case of one drug—namely, opium—skin applications are frequently employed for the production of anodyne local effects, although it has been proved experimentally that opium only acts as a sedative centrally, i.e., on the brain, and has no anodyne effect on peripheral nerves at all. Thus fomentation with an infusion of poppy heads would be just as effective without the poppy heads, and much more effective if to the effect of that hot water externally were added the action of a hypodermic injection of morphin. Still, the use of poppy heads in fomentations is a harmless fancy and it will doubtless survive.

The administration of drugs by intra-tracheal injection and by inhalation is of very limited application, but, within right limits, has much to commend it. For local effects, especially the application of parasiticides, it is excellent, provided the agents given are in such quantity and form as to do no harm to the bronchioles or the lungs. For systemic effects the method is almost confined to the volatile drugs, such as the gases and liquids, like chloroform and ether. Iodin is also given, but there is no very marked advantage in giving it by this method in cases where it can be given by the mouth. The effects of inhalation of a drug depend almost entirely on the physical state of the drug. If the agent is in a particulate form, then it only reaches the upper air passages, nasal cavities, trachea and perhaps bronchi, for it is infallibly arrested on the moist mucous surfaces and has no appreciable effect (unless some is absorbed) in the finer bronchioles and air spaces of the lung. Even steam is condensed and only serves to saturate the inspired air with moisture. This moisture, of course, is useful in cases of tracheal and bronchial catarrh, but the solution of carbolic acid, creosote, and similar preparations in the steam must only be expected to have a very local effect and not to act in the lungs themselves. With drugs really volatile and inspired as gases at ordinary temperatures, such as chloroform and ether, the effects are different. Not only do they reach the air spaces in the lungs, but they are quickly taken up from these spaces into the blood and so exert a systemic effect.

This method is of constant application in the giving of anesthetics, but it is open to some objections. These are well illustrated in the case of the dog, when chloroform is administered. The dog is often said to be a bad subject for chloroform, although Hobday's experiments clearly showed that slow, even administration, with a very small percentage of chloroform in air was comparatively safe. The difficulty arises from the fact that when signs of distress are seen—e. g., the breathing becomes very shallow or stops—there is a considerable amount of chloroform vapor in the lungs which cannot be got out. The animal is suffering from an excess of chloroform in his blood, and although the administration may be at once stopped, it is impossible to prevent this further supply of chloroform in the lung sacs from being absorbed. Hypodermic injection has done away with many of the inaccuracies and disadvantages of dosage by the mouth. Intravenous injection is more exact still.—H. A. Woodruff, M. R. C. V. S., in The Veterinary News.

SIMPLE METHOD OF APPLYING TRACTION TO A FETUS

I have a method of applying traction to a fetus that I thought might be of help to other veterinarians, so I am sending it in.

Cord the fetus as usual, of course, after correcting any malpresentation if it exists.

Tie one-half or three-fourths inch rope from the cords to some fixed object back of the mother, rather loosely. Take a stiff stick or a stable fork, tines upward, and stand up along side the rope about the center, which is held by an assistant.

Then take a good stout stick, one and one-half or two feet long and twist it in the rope at the stick being held up to the rope in an upright manner, including both the stick and the rope. Try it.

H. W. Underwood, D. V. M.,
Cresson, Pa.

A NOVEL CAESAREAN SECTION

Although no doubt such a proceeding as the following is fairly common in veterinary practice, it is not every day that a general practitioner is called upon at a moment's notice to perform a canine Caesarean section.

I was attending a club patient in the North of England one day when my attention was drawn to a lovely specimen of a Yorkshire terrior, which was lying on its side on a couch apparently in extremis. The eyes were filming over and its poor attempts to wag its tail when spoken to were really pitiful to watch. Its time for parturition had passed about a week previously, and no puppy had been forthcoming. The condition evidently required urgent operative interference or the bitch was doomed. As the animal was a very valuable one I decided to do my best for it, relying on my scanty knowledge of canine anatomy derived from my necessary biological studies. However, I did not see any reason why a proceeding after the style of a complete Porro-caesarean section should not answer. My wife is a fully trained surgical sister from London, and I left all necessary sterilizing in her hands, while I turned a disused bedroom into an apology for an operating theatre. The table consisted of a marble-topped washstand with the back removed.

The bitch was anesthetised in its mistress's arms and then fastened to the table by tying the two front paws to the legs of the table, and the two hind paws to the other legs of the table. The animal was thus fixed in position with its belly upwards. The district nurse continued the anesthetic under my directions, as well that is to say as she could for amusement at the novelty of her patient.

Everything was then done as if the patient had been human, the skin being carefully sterilized and the necessary towels being placed around the area for operation.

I opened in the middle line, and out popped the head of a very large black fetus, whose father must have been at least a retriever. I ligatured the soft tissues above and below the offending object and cut between ligatures both above and below. These stumps thus left after removal of the overcharged uterus were tied together by ligatures. The wound was closed in one layer. Gauze dressings were then applied and bandaged firmly on. This was further protected by a silicate bandage from chest to tail. Catheterisation was needed on the second day, but otherwise a perfectly uninterrupted recovery was made. The bandages were soaked off on the fourteenth day, and the bitch allowed to go about on her legs again. The wound had healed by first intention, and no sign of a hernia could be found at the end of eighteen months.

The motto, therefore, for a G. P. in the country who is forty miles from the nearest veterinary surgeon is to go on and do it, and trust to Providence to look after his patient if it happens not to be human.—By H. Gordon Webb, M. R. C. S., L. R. C. P., in The Hospital.—Reprinted from the Veterinary Record.

AN UNUSUAL CASE OF AZOTURIA.

The subject was a general farm mare, four years old, in good condition. The history given after cross-examination of the owner was as follows:

She was driven into town about 10 a. m., a distance of eight miles. During the first few miles of the journey she seemed disinclined to go, and the young farmer plied the whip vigorously and forced her to trot. She then became very stiff in both fore legs, but eventually reached town, and on arrival was put into a livery stable. During the drive she sweated profusely. The owner observed that the muscles in the vicinity of the elbow on each side were hard and swollen. On the afternoon of that day she was brought to me for treatment, the owner stating that the animal got lame on the road, and was swollen on the muscles of the elbow. This he attributed to having worked the mare in a harrow a few days previously, when the draught chains came into contact with the elbows.

On examination, I found evidences of recent sweating, and the skin showed that the whip had been freely applied. The caput muscles of each side were much swollen, hard, and prominent, and resembled the condition of the gluteal muscles in a case of azoturia. The mare when walked showed a moderate degree of stiffness in both fore limbs. I confess that I was puzzled to account for the symptoms, and very nearly accepted the farmer's version as regards the injury to the muscles.

A little cross-examination, however, elicited the fact that the animal had been left idle in the stable for three days, and fed as usual. Also, that when she pulled up on the road she commenced to stamp with each fore foot alternately.

The suspicion of azoturia then dawned upon me, and I proceeded to examine the condition

of the urine. The bladder was much distended, and on passing the catheter an enormous amount of port-colored urine was removed. Nothing abnormal was found in connection with the gluteal muscles.

The case was admitted to hospital for treatment. Two ounces of sweet spirit of nitre and one pint of raw linseed oil were administered. The affected muscles were fomented with hot water. Full doses of bicarbonate of soda were given in the drinking water.

Next day the swelling in the caput muscles had become so reduced in extent that careful examination was necessary in order to detect any abnormality. The urine was also normal in appearance, and the stiffness had practically left the fore limbs. In the evening the owner called and took the mare home, and no further symptoms developed.—By E. Wallis Hoare, F. R. C. V. S., in The Veterinary News.

A PECULIAR SHIVERER.

A client purchased a three-year-old cart colt at a Michaelmas sale, and on its arrival home, worked it on the farm without shoes till Christmas time. Then when the land got harder, he sent it to the blacksmith to be shod, and was much surprised to have it returned, as the farrier found he could not lift his front feet up. I was called in to see the colt, and found that he could trot quite freely, could back without his tail quivering and seemed to all intents quite sound until one tried to lift his fore feet up. Then he would begin to tremble all over and bear his whole weight on the limb you had hold of, so making it an impossibility to get off the ground. I tried him with a rope over his shoulder to no effect, and even put him into slings so that we might shoe him, but all to no avail. Finally we had to cast him to shoe, and this was done periodically every few months until he was sold a short time ago.

One of the peculiar features about this case is that the farrier always shod his hind feet without any trouble right to the end. Finally, I might add, that three or four mouths after I first saw him he gradually developed into a typical shiverer, i. e., lifting his tail and hind legs when made to back, so there is no question in my mind that the symptoms I have described were due to "shivering."—W. Walters, M. R. C. V. S., in The Veterinary Record.

AN UNUSUAL SKIN LESION

The subject, a large bull-terrior, was first brought to me for treatment about six months ago. He then showed a peculiar condition of that area of skin round the penis and scrotum which in this breed of dog is, as a rule, only scantily covered with hair. The affected area was circular in outline sharply defined, being roughly about 6 inches in diameter. There was no scratching or biting at the part, or other evidence of irritation, but the skin was more red than usual, very much thickened and thrown into folds. When palpated there was no adhesion of the affected part to the underlying tissues, and no evidence of hardening, but the skin gave to the touch a peculiar feeling of coldness. There were no pustules, and none have since been noticed, though the animal had been regularly examined about once a fortnight. The owner had only just bought the dog and knew nothing of its history. He was given a mixture of sulphur, rape oil, and potassium carbonate, to be rubbed in once daily with an old tooth-brush. In a month this had produced no effect; the condition seemed no worse and the affected area had not extended. The dressing was changed for creosote, olive oil and solution of potash. In another month this had had no effect, so zinc chlorid was given a trial for about the same time.

This seemed to bring off some of the surface epithelium, but the thickening, wrinkling and coldness were as marked as ever though not increased. With the commencement of the warm weather the animal developed a patch of "moist eczema," which readily yielded to a mixture of zinc and sulphur ointments, whilst the abdominal lesion was unaltered. About this time the owner noticed that the animal "sweated" over the affected area and that the smell was objectionable. There was no preputial discharge and during the hot weather the skin was certainly moist but still felt cold. To remove the smell, and with any other idea, the owner was given a bottle of hydrogen peroxid to apply to the affected part twice daily after washing with soap and water. In about a fortnight he came back with the animal showing a considerable improvement. The redness was less marked, the sweating had disappeared, and the sensation of coldness was not so noticeable, the treatment was continued and with this (or in spite of it) the skin has, in about six weeks returned to the normal. During the period

previous to the application of the hydrogen peroxid the dog's diet has been changed from meat to biscuits and vice-versa without effect. The skin was scraped till it bled and the scrapings examined for parasite with negative result.

It did not seem indicated to remove any part of the skin for section cutting as no part seemed worse affected than another, and it is not likely that the hydrogen peroxid was entirely, if even in part, responsible for the disappearance of the condition, so under diagnosis in the case book a query must again be entered.—Senex, in The Veterinary News.

OBSERVATION—I

"He alone is an acute observer who can observe minutely without being observed"—(Lavater.)

In veterinary practice well-trained powers of observation constitute a very important factor in every department of the profession. Probably there is no calling in which observation is more essential than in ours; this is explained by the fact that we have to depend on objective symptoms, and on clinical histories given by attendants, in order to arrive at a diagnosis. Needless to remark, objective symptoms must be detected by observation, and it follows that the more highly trained the professional eye, the more likely are the phenomena suggestive of special diseased conditions to be observed.

With regard to clinical histories as supplied by owners and attendants, it is well known that such are notoriously unreliable, and tact and observation are necessary in order to glean the truth. Too frequently attendants, in order to shield themselves from blame, prevaricate or even utter falsehoods with reference to the history of a case. In some instances important points are kept back owing to stupidity or ignorance; in others, the only explanation of the attempt to lead the practitioner astray is pure "cussedness" on the part of owners or attendants.

Careful observation, combined with judicious cross-examination, are often required in the endeavor to obtain the correct history of a case. The details given may be incompatible with the phenomena observed by the practitioner. Experience teaches that we should not place implicit reliance on statements made or volunteered by owners or attendants. It is necessary, after a careful examination of a case, to compare the information gleaned therefrom with the history given, and to note the discrepancies which may be revealed.—E. Wallis Hoare, F. R. C. V. S., in The Veterinary News.

PRACTICAL FORMULAE*

For Pharyngitis of Horses.

℞
Fluidextracti belladonnae ..... ʒi
Potassi chloratis ..... ʒii
Pulveris glycyhhizae ..... ʒv
Syrupi fusci q. s.
M. et fiat electuarium. (Weigh one ounce for sample dose.)
S. Smear amount equal to sample on teeth with stick three times daily.

For Roundworms in Horses.

℞
Arseni trioxidi ..... gr. 80
Pulveris nucis arecae ..... ʒi
Ferri sulphatis exsiccati ..... ʒi
M. et divide in chartulas No. viii.
Sig. One powder on feed each morning, and follow with pint of linseed oil containing ʒii of oil of turpentine on eighth day.

For Palpitation of the Heart in Horses.

℞
Fluidextracti aconiti ..... ʒii
Fluidextracti digitalis.
Fluidextracti belladonnae radicis ..... āā ʒi
(Furnish ʒii bottle.)
M.
S. Small bottleful on tongue t. i. d.

For Urticaria or Pruritis.

℞
Mentholis.
Camphorae ..... āā gr. xxx
Petrolati liquidi ..... ʒii
Sig. Apply externally.

Stimulating Liniment.

℞
Ol. terebinthinae 50.00
Ol. succini 20.00
Saponis pulv. 10.00
Potassae 2.00
Aquae ed. 1,000.00
M. et fiat linimentum.

Astringent and Sedative Lotion for Skin Diseases.

℞
Liquoris plumbi subacetatis ..... ʒiv
Tincture opii ..... ʒi
Glycerini ..... ʒii
Aquae ..... ad Oi
M. (Shake.)
S. External use.

*From Winslow's Veterinary Materia Medica.

IMPACTION IN HORSES FROM EATING RUSSIAN THISTLE.

Would like to hear from some of the readers who have had experience with impaction in horses and cattle from eating Russian thistle. I should like to see the following points discussed: The stage of growth at which it causes impactions, minimum amount that may cause impaction in horses and cattle, symptoms, diagnosis and treatment.—O. W. J., Washington.

OPEN STIFLE JOINT.

The subject of this note was a bay gelding aged 7 years, hired by the West Riding of Yorkshire County Association and doing duty with the West Riding Divisional Telegraph Company during the annual training at Skegness, Lincolnshire.

He was picketed in the horse lines in the usual manner with head and heel ropes.

The animal was found in the early morning to be lame of the off hind leg and to have a punctured wound on the outer side of the off-stifle, the skin being broken horizontally for about an inch and a half. The injury was produced, during the night before, probably by his neighbor giving him a blow, when kicking, with a loose heel-peg.

There was a copious flow of blood-stained synovia, which became frothy on movement.

Treatment—(1). Hair surrounding wound was removed, and the skin in the neighborhood was thoroughly disinfected.

(2) Wound carefully and thoroughly syringed with a solution of mercuric bichlorid. (1 to 100 of water).

(3) Four pin sutures were inserted to completely close the wound, which was dusted with boric acid powder.

(4) Dose of physic administered to horse and a diet of bran mash and long hay ordered, and chilled water given. As it was impossible to sling the animal, he was tied up short to limit movement.

The only further treatment for the next five days was to dust the wound with a dusting powder (ac. boraci., zinci oxid.) twice daily.

There was much swelling of the stifle region and much pain the next day, but the swelling did not persist, and the pain lessened.

The temperature remained normal, and a good appetite was maintained throughout.

After five days lameness was not so marked. A small quantity of very thick white opaque discharge was seen between the sutures. The pins were removed, but not the suture material, and dry lime was dusted on whenever any discharge appeared.

At the end of a week the discharge had ceased. The coagulated material over wound was removed. No further treatment necessary.

Ten days after I first saw this case it was discharged and sent home by rail. He was then only slightly stiff; probably a blister and a month's further rest would restore him to his original usefulness.

I record the case since it is the first of a large number of "open stifles" which I have seen recovered.

It shows the value of seeing and treating open joint cases early.—A. N. Foster, Lieut. A. V. C., Freetown, Sierra Leone, in The Veterinary News.

HORSE SALES AN EXCEPTION TO GENERAL BUSINESS.

Reports from Boston and New York to the Horse Association of America, with headquarters in Chicago, show that the sales of horses in the eleven northeastern states—Pennsylvania, Maryland and states East and North—are outstanding exceptions to the general trend of sales in other lines.

J. C. Keith of Boston reports his sales of horses for January through April to be over 5,000 head, as against approximately 4,000 head in 1920 for the same months. This represents a gain of 25 per cent. He says that dealers throughout New England have a brisk demand for good work horses and that sales are considerably increased.

Fiss, Doerr & Carroll of New York, say: "Our records show that for the first five months of this year we sold 14,239 horses as against 11,605 in the same period of last year. Business is gaining. From comments of buyers we are confident of a steadily increasing demand for good wagon horses and those suitable for general delivery work. Demand for drafters will increase as soon as business conditions pick up. At present, cartage men are not using their full equipment."

These figures show a gain of over 22 per cent. Dealers at other Eastern points report greater sales than last year, and that many men who have not bought horses for six or eight years are buying now. With New York and New England transportation users finding it profitable to use horses in city hauling, in spite of heavy freight rates to get them there,

what should be the position of the merchants in the Middle West, without such freight costs to pay?—Wayne Dinsmore, Chicago.

Chicago.

TETANUS AFTER CASTRATION.

Subject.—Yearling colt grazing on a poultry farm, was castrated by me with ecraseur on May 17th. The colt was cast with ropes, the scrotum well swabbed with hyd. perchlor in spirit. There was practically no hemorrhage during and after operation.

On May 29th the colt was reported to be very stiff, and on visiting I found that there were unmistakable signs of tetanus, and as there was no convenience to have the animal properly nursed, and only a shed to run in, I decided to leave the animal in the open. The jaws could be opened about one and a half inches, and I managed to give a 5 dram physic ball which acted well in 24 hours. The colt received one-half dram doses of ext. bellad, twice daily in sloppy mash, which he managed to swallow fairly well, and after the fourth day improvement was noticed with complete recovery in about ten to twelve days.—S. E. Sampson, M. R. C. V. S., in The Veterinary News.

EVERSION OF UTERUS IN MARE.

A four-year-old cart mare was found at 7 a. m. to have cast her foal two months before due time. The owner thought the mass which was hanging from the mare's vagina was cleansing, but at 2 p. m. the same day a neighbor's advice was sought, with the result that a message was received at my yard to attend at once, and as I was out in another direcion, I was unable to get to the farm until 8 p. m. I found the mare in a most pitiable condition, she having almost become exhausted. The uterus was covered with feces and slush off the stable floor; everything was in the worst sanitary condition it would be possible to conceive. However, I decided to attempt replacement, and after the organ had been well washed with pretty hot water, and disinfected, I got the uterus in a clean sheet and applied pressure to the outside, and by so doing reduced the bulk of the organ by one half. I next replaced the organ, commencing at the neck and pushing the horn of the uterus back into its normal position by the aid of a pint bottle. An acid boric and iodoform pessary was left in the uterus, and the vulva sutured up.

There was very little straining after the operation, and beyond receiving ordinary treatment, the mare was very little further trouble and made a complete recovery in three weeks.

Remarks.—How often do we condemn an animal to receive a bullet, when if nature was put on the right course, she would help us to bring about a recovery?

When one comes across cases of the above type, does it not appeal to us that we may be at times too hasty in ordering slaughter, which I nearly did before trying what I could do in this case?—S. E. Sampson, in The Veterinary News.

A CASE OF INTESTINAL STRANGULATION IN THE HORSE.

During the night of August 25, 1915, I was asked to attend a gelding aged 8 years.

Previous History.—Since 3 p. m. the animal had shown symptoms of colic (pawing, lying down and getting up), had voided some urine and defecated.

Symptoms and Treatment.—Pulse was 80, resp. 32, temp. 99.5 deg. F. (1 a. m. August 26th). Body covered with sweat. It lay down and rose very carefully On auscultating the abdomen I only heard some feeble, short sounds. On account of the very careful movements of the horse I thought I had to do with a case of volvulus. I gave a subcutaneous injection of arecolin, and per os a dose of acidum hydrochloricum. I returned on August 26th at 12 o'clock. The owner told me the horse had not risen and during the last hour it had pawed, but not violently.

No defecation. The respirations were of the abdominal type, and numbered 40. Pulse 88, temp. 103.1° F. No distention of the abdomen. Rectal examination proved negative, as I only found a dry and hard dungball. When I finished my examination the horse died.

Post-mortem.—My diagnosis was correct. In the ileum I found a strangulated loop; the length of it was about one foot. The strangulation was caused by the pedicle of a tumor. The serum institution at Rotterdam histologically examined the tumor and reported that it was a lipoma. The strangulated part was dark red and contained a bloody liquid. The length of the ileum between the affected

part and the cecum was 2½ yards. In the ileum near the cecum I found several taeniae; length, one inch. It was taenia perfoliata.—J. Bouwman, Oosterholt, in The Veterinary News.

AN INTERESTING CASE OF FIBROMATA IN A HORSE

The subject of this article was a black gelding, aged seven years, and was sent into the sick lines of a Mobile Veterinary Section on July 5, 1916.

Lieutenant H. Kirk, A. V. C., who sent the case in, stated that he had applied the mallein test, but with negative results, and he had come to regard the case as one of an obscure lymphangitis. He also reported that he had dressed the broken lesions with a solution of copper sulphate.

The affected limb (near fore) presented the following appearance: The whole region from the point of the elbow to the lower third of the shank was covered with a number of eruptions. Some of these had burst and were literally "ulcers"; those that had not broken resembled small subcutaneous tumors or fibromata. The lymphatics of the region were "corded" as is frequently seen along the side of the neck in cases of equine glanders. The eruptions followed the course of the lymph vessels, and although the majority of the lesions were on the outside of the limb, there were also similar lesions in the axilla, and on the inner aspect of the forearm, almost parallel with those on the outside of the limb.

It was decided to treat the broken lesions after the manner adopted in some cases of epizootic lymphangitis, that is to say, the cavities were curetted out and packed with crystals of potassium permanganate.

On July 9th Captain W. G. Wragg, A. V. C., prepared microscopic slides from material obtained from a freshly-opened lesion. He reported later that he had been unable to find any of Rivolta's cryptococci, or any Preisz-Nocard bacilli. This showed that the case was not one of epizootic or ulcerative lymphangitis. Captain Wragg could, in fact, report no micro-organism as being present.

On July 15th this case, with others, was evacuated to Tunbridge Wells Veterinary Hospital, and Captain J. Bell, A. V. C., was furnished with a full report of the case, and was asked to report on it later.

He has informed me that for a time it appeared as if recovery might take place; this, however, was only temporary, and he states that later the subcutaneous lesions assumed the definite form of fibromata. On post-mortem examination, he states that the liver was found to be full of these tumors.

This case is interesting, as it shows that fibromata may appear as the result of an infection (in this case by the lymph vessels).

The contents of the primary "ulcerative" lesions was either a sanious pus or a pus of a cheesy consistency. This, of course, may have been the embryo structure of such tumors, which later became of a more consolidated nature, i. e., fibrous tissue, and formed what are pathologically termed "fibromata."

Several theories might very well be advanced. Perhaps the lining membrane of the lymph vessels for a time prevented the formation of proper tumor cells, as it is now known that endothelium will prevent the penetration and growth of tumor cells for a time.

This might have been so in this case. Later on this preventative power became impaired and tumor cells were able to grow.—Capt. J. F. D. Tutt, in The Veterinary News.

DEMODECTIC MANGE

Synonyms: acariasis, acarus mange, red mange, follicular mange, etc.

This is the form that so often is considered incurable. I have had splendid results from the use of a very simple remedy and that is the very thorough rubbing into the skin of castor oil.

To this may be added, if desired, a small quantity of crude oil, oil of tar or oil of eucalyptus, but they do not enhance the curative properties of the castor oil.

Another line of treatment that has been recently exploited and seemingly to give good results is the use of a formaldehyde dip.—E. L. Q.

The veterinary profession is a very scientific and the least quackish profession; it accepts nothing unless absolutely proved, and is not led away by the caprice of fashion. It is, however, very conservative. With the exception of that section catering for the whims or demands of dog owners it practices less humbug than the other profession.—Veterinary News.

The Haver-Glover Page

PUBLISHED EVERY NOW AND THEN IN THE INTERESTS OF GRADUATE VETERINARIANS

TO the majority of the readers of this page it is unnecessary to mention that we have devoted eleven months' time to talking SALES POLICIES. They KNOW that we are not selling to every practitioner who happens to have a license, but only to about half the number of licensed men—the Graduates.

These policy talks have made us many friends —more than we had expected in such a brief period of time—but during the meantime an important part of our work has been mailing our catalogs to graduate veterinarians.

Little has been said regarding our products, and it is *little* indeed when there is so *much* to be said.

The H-G Graduate Harmonies, our bi-monthly publication, has informed you regarding our advancement in the veterinary field, so that we have been with you during the past ten months, regularly — not waiting for the so-called normal conditions to return.

Harvest time, chautauquas and county fairs have interfered with the practitioner's plans no doubt, but now his fall work is right at hand. Most of the country banks offer encouragement for the betterment of conditions and it is up to all of us to make the best of it.

There is plenty of work to be done. Veterinarians who have been engaged in general practice, where all lines of activity invited their attention, have been on the job regularly. Now is the time to educate the client that veterinary service in the care of ALL of his stock is profitable to all concerned.

We can't wait for business, it's up to us to "fight" for it. But with Haver-Glover ammunition, with each package marked, "This product sold only to the Graduate Veterinarian," you do not have to offer excuses because the neighborhood quack has used the same product. You can point out the fact that it is especially prepared for your use, better than he can buy.

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Matters of Current Interest

Dr. R. A. Craig of the veterinary department of Purdue University has been granted a leave of absence from his duties by the board of trustees of that institution and will leave about the middle of October for South America to engage in the investigation of hog diseases and to establish a hog cholera serum plant for the Campion Ranch, which is located near Buenos Aires, in Argentina

He expects to be gone two or three months.

Abie, Nebraska, has been favored with the services of one of the few woman veterinarians. Mrs. Hattie Zmedlik recently moved there from Tobar, S. Dak. Dr. Zmedik is a graduate of a veterinary college in Prague, Bohemia.

Dr. B. L. Warwick, a veterinary practitioner of Aledo, Ill., has been appointed to the position of assistant in the veterinary department of the University of Wisconsin. Dr. Warwick is a graduate of the veterinary department of the Iowa State College, at Ames.

Dr. Sam Hayes, Hutchinson, Kansas, entered several horses in the various contests at the round up at the Lyons County Fair. Among these horses was "Snake," Dr. Hayes' champion roping horse, which has held the state record for many years.

Dr. J. H. Dunn of Ocala, Florida, was recently held up by a highwayman as he was leaving his office early in the evening. His pockets were picked of all the money he had with him. Dr. Dunn was unconscious when found, but soon came to, and his injuries are not considered serious.

Dr. C. V. Laird, formerly of Springfield, Ill., has located for practice at Marion, Ill.

The veterinarians of Morgan, Cass and Scott counties, Illinois, recently organized an association. Dr. B. F. Webster of Winchester was elected president, and A. C. Bolle of Jacksonville was elected secretary.

Dr. L. C. Carstensen, Davenport, Wash., was killed in an automobile accident recently, when a wheel came off his car. Dr. Carstensen was 62 years old and a native of Denmark.

Dr. Oscar Silfver, who was appointed city veterinarian of Peoria, Illinois, two weeks ago, has resigned his position to accept an appointment as inspector at the local stock yards of Peoria, to succeed Dr. Ira Dilley, who in turn, has been appointed as inspector in charge of hog cholera control in Warren County.

Dr. Silfver is succeeded as city veterinarian by Dr. James R. Brown, Jr., of the firm of Drs. Hartman & Brown, Peoria.

Dr. L. C. Hull, formerly of Colchester, Ill., has moved to Joslyn, Ill., where he will establish himself in practice.

Dr. Nicholas J. Byrne, for 44 years the veterinarian for the fire department of Kansas City, Mo., died recently at St. Joseph's Hospital. Dr. Byrne was 69 years old, and has lived in Kansas City for 58 years.

Dr. B. W. Wilson of Woodstock, Ill., recently sold his practice to Dr. Babcock of Palatine. Dr. Wilson has been in poor health since an attack of influenza some time ago, and is going to move to California for his health.

Dr. Robt. Porteus has announced the opening of an office and hospital in Bellefontaine, Ohio. Dr. Porteus practiced in that vicinity from 1910 until he entered the army at the beginning of the war, and has just recently returned to that city.

Anthrax has again broken out in the district southwest of Nowata, Oklahoma. The outbreak is not very severe, but Dr. C. C. Nickel, who is in charge of control measures, urges every precaution to prevent further spread.

Dr. Geo. A. Rostetter has recently located at Washington, Ill.

Twenty veterinarians from Knox, Sullivan, Greene, Davies and Pike counties, with their wives and children, met Friday at East Side Park, Washington, Ind., for an all-day meeting and fried chicken dinner.

Dr. J. E. Gibson of the Bureau of Animal Industry, in charge of the supervision of tuberculosis, and Dr. Frank D. Porter, of the

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hog cholera control work, were the principal speakers. Dr. Gibson said the co-operation in the tuberculosis eradication work has been above the expectation of the state and government officials. Applications for free testing are flooding the offices every day, and those doing the work can't see that only a small percent can be taken care of with the applications made for it.

Dr. R. L. Fletcher, Plattesville, Wis., was recently shot from ambush and severely wounded while returning from a call. Police officials have been unable to apprehend his assailant.

The instructor in agriculture at the high school in Jacksonville, Ill., recently took his class to the hospital of Dr. S. J. Carter to witness a radical operation for fistula of the withers. Dr. Carter performed the operation with the animal under general anesthesia.

Dr. J. A. Creech of Woodruff, S. Car., has moved to Greer, in the same state.

The North Central Iowa Veterinary Association held a meeting in Fort Dodge recently. Nearly 150 veterinarians attended the meeting. Visitors to the meeting included Dr. A. T. Kinsley of Kansas City, president of the A. V. M. A.

An unusual interest is being taken by Florida cattle men in tick eradication. The only kind of interest that Florida cattle raisers have shown heretofore has been the interest that prompted them to dynamite dipping vats.

As a result, while tick eradication in other states has progressed to where in most of them the finish of the tick is in sight, Florida has continued to raise large fat ticks and scrawny little cattle.

A recent quarantine by the Bureau of Animal Industry that prevented Florida cattle from being exported to any state in the Union for any purpose has aroused this interest, and now Cuba proposes a similar quarantine against Florida cattle raisers.

There has been such a reversion of sentiment among the cattle men regarding tick eradication that they are asking the governor to call a special session of the legislature to provide for eradication of the tick.

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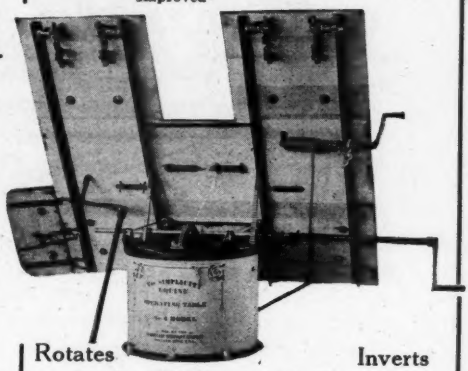

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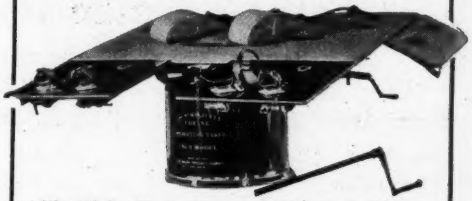

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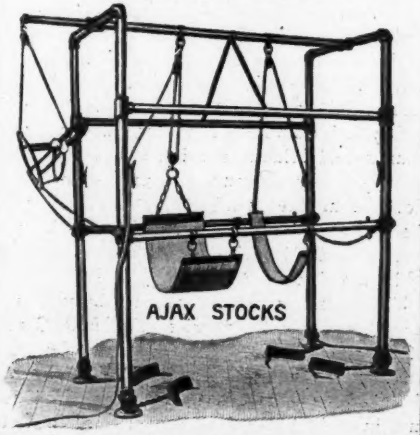

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Dr. C. A. Nelson of Brainerd was recently kicked in the head by a horse he was treating. Several stitches were required in the doctor's head, after which he was removed to his home. It is reported that the doctor is recovering.

A meeting of veterinarians of seven central Pennsylvania counties was held at the home of Dr. H. T. McNeal, at Sunbury, Wednesday night, September 14th, and a permanent organization to be known as the Central Pennsylvania Veterinary Club was formed. The club, which consists of veterinarians of Northumberland, Columbia, Montour, Snyder, Union, Juniata and Mifflin counties, was organized to form a closer personal and professional relation among the members, as well as for the discussion of subjects pertaining to the profession and otherwise advancing the interests of its members.

The meeting was well attended by veterinarians throughout the district. Dr. H. R. Church of Harrisburg, deputy State Veterinarian, gave an interesting talk. Dr. B. M. Potteiger, of Selinsgrove, was elected secretary. The next meeting will be held at Bloomsburg in October, and Dr. William Smith of Stillwater, Columbia county, was named president for that session. Meetings will be held every three months, and a president for each meeting will be named from the section in which the meeting is held.

Dr. W. J. Raegor of the Bureau of Animal Industry, in charge of tuberculosis eradication work, has recently established headquarters at Kearney, Nebr.

Dr. I. A. Walsdorf, a recent graduate of the Indiana Veterinary College, has opened an office at St. Anna, Wis.

Dr. C. A. Weber of Zanesville, Ohio, is the owner of "O Boy Zane," a prize airedale, which he exhibited at the Chicago Dog Show recently, and which took a blue ribbon and $50.00 in prize money in competition with sixty-five airedales from all over the United States.

The 40th annual meeting of the Illinois State Veterinary Medical Association will be held at the Lexington Hotel, Chicago, December 1 and 2. The secretary promises that the

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program will be up to the usual standard set for this association.

Because the annual meeting of the Illinois association occurs during the week of the International Live Stock Exposition and the meeting of the United States Live Stock Sanitary Association, when practically all state veterinarians and other live stock sanitary authorities in the country are in Chicago, the sessions are attended by an unusual number of prominent veterinary visitors. Its program has never been a disappointment to these visitors.

The 25th annual meeting of the United States Live Stock Sanitary Association will be held at the LaSalle Hotel, Chicago, November 28, 29, and 30, 1921. No veterinarian who can arrange to be in Chicago during the week of the International Live Stock Exposition should fail to attend the meeting of this association.

Dr. J. L. Wells of Aurora, Mo., has entered the state and government service, and has sold his practice and equipment to Dr. R. S. Paige, formerly of Mt. Vernon, Mo.

Dr. Frank J. Baker of Gouverneur, N. Y., calls attention to the fact that notwithstanding the newspaper report that his practice was taken over by Dr. Chas. S. McCoy, that he is still in Gouverneur, where he has practiced for sixteen years, and that he intends to stay.

Dr. L. S. Campbell, Topeka, Kan., and Miss Phoebe Atkinson of McPherson, Kan., were married August 31st, in Wichita, Kan., and spent their honeymoon in the mountains of Colorado, and incidentally attended the A. V. M. A. meeting in Denver. Dr. Campbell is a member of the B. A. I. force on tuberculosis eradication and hog cholera control in Kansas.

Dr. S. E. Bitler, who is now with the Bureau of Animal Industry of Pennsylvania, was mainly responsible for the organization of the club, and to him credit is due for the splendid success of the first meeting.

Dr. John Redmond, engaged in tick eradication in Alabama, in commenting upon some of the strange experiences of veterinarians in that work says: "About April, 1920, there were fifteen to twenty dipping vats dynamited in Tuscaloosa county. We felt sure we knew the leader of the party, but could not get evi-

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dence to convict. After a happening at a recent camp meeting, we think in the future we will seek the aid of the parson instead of the sheriff's office when other occurrences of this kind happen.." At the camp meeting referred to, a farmer took the floor and said: "I have got religion. I will confess my sins and start over. I was the leader in blowing up all those dipping vats in this part of the country. I am sorry. One of the members of the party is dead. I will give the name of the third person whenever the officers wish it."

Dr. A. C. Knapp of Bridgeport, Connecticut, has been seriously ill. He has been suffering from gastric ulcer and became so weakened from hemorrhages that blood transfusion was necessary. He is improving slowly, and has been ordered to remain in bed for some time. Dr. Knapp has been connected with the Bridgeport Board of Health for the past fifteen years.

The central Nebraska veterinary association and the improved live stock breeders' association held a joint meeting at Kearney, Nebraska, recently. There was an attendance of about 250.

The principal speakers were Dr. A. T. Kinsley of Kansas City, Mo., president of the American veterinary medical association, Dr. W. T. Spencer, live stock commissioner for the Omaha Live Stock Exchange, and Mr. H. C. Holt, a pioneer breeder of purebred live stock.

A two-day course covering tuberculosis and tuberculin testing of cows was held in Marquette, Michigan, recently. Following the course, a special examination was held for all veterinarians in the state who wished to become certified for interstate, export and accredited herd testing.

The principal speakers were: Dr. B. J. Killham, state veterinarian, Dr. H. M. Newton, federal inspector in charge of hog cholera control and scab eradication, Dr. F. W. Chamberlain, acting dean of the veterinary school at the Michigan Agricultural College, and Dr. E. T. Hallman, pathologist at the Michigan Agricultural College.

Dr. C. C. Pemberton, recently of Wellsville, Kansas, has purchased a veterinary practice at Liberty, Mo., and will open an office in that city.

ASSOCIATION MEETINGS

ASSOCIATION	PLACE	DATE	SECRETARY
Alabama Vet. Med. Assn.	Auburn, Ala.	March, 1922	C. A. Cary, Auburn, Ala.
American Vet. Med. Assn.	St. Louis, Mo.		N. S. Mayo, Ravenswood, Chicago.
California State V. M. A.	Davis, Cal.	Jan. 1-7, 1922	J. P. Bushong, Los Angeles.
Central Neb. Vet. Assn.	Kearney, Neb.	Sept., 1921	L. B. Wolcott, Shelton, Neb.
Central N. Y. Vet. Med. Assn	Syracuse, N. Y.	Nov., 1921	W. B. Switzer, Oswego, N. Y.
Chicago Vet. Soc.	Chicago.	2nd Tuesday of each month.	J. B. Jaffray, Chicago, Ill.
Conestoga Vet. Club.	Lancaster, Pa.	2nd Thursday each month.	H. B. Brady
Georgia State Vet. Assn.	Macon, Ga.	Betw. Sept. 8-15, 1921	P. F. Bahnsen, Americus, Ga.
Illinois S. V. M. Assn.	Chicago.	Dec., 1-2, 1921	D. M. Campbell, Chicago, Ill.
Indiana V. M. Assn.	Indianapolis.	January, 1922	E. T. Davis, Plainfield, Ind.
Iowa Vet. Assn.	Ames and DesMoines	January, 1922	H. D. Bergman, Ames, Iowa
Kansas V. M. Assn.	Ottawa, Kans.	January, 1922	I. J. Pierson, Lawrence, Kans.
Kentucky Vet. Med. Assn.	Owensboro, Ky.	Feb. 8-9, 1922	Chas. W. Fisher, Danville, Ky.
Massachusetts V. A.	Boston, Mass.	4th Wednesday of month.	H. W. Pierce, West Medford, Mass.
Minnesota S. V. M. A.	St. Paul.	January 12-13, 1922	C. P. Fitch, Univ. Farm, St. Paul
Mississippi S. V. M. Assn.	Canton, Miss.	January, 1922	J. A. Barger, Jackson, Miss.
Missouri Valley Vet. Assn.	Kansas City.	February, 1922	R. F. Bourne, Ft. Collins, Colo.
Montana Vet. Med. Assn.	Billings.	July, 1922	H. Marsh, Helena
Natl. Assn. of B. A. I.	Meet with A.V.M.A	Sept. 5-9, 1922	S. J. Walkley, Milwaukee, Wis.
Nebr. Vet. Med. Assn.	Lincoln, Nebr.	Dec. 13 and 14, 1921	Carl J. Norden, Lincoln, Nebr.
New York S. V. M. Soc.	Syracuse.	1922	C. E. Hayden, Ithaca, N. Y.
North Carolina S. V. M. A.	Asheville.	June, 1922	J. P. Spoon, Burlington, N. C.
North Dakota V. M. Assn.	Fargo.	July, 1922	R. S. Amadon, Agri. Coll., N. Dak.
Ohio St. Vet. Med. Assn.	Columbus, Ohio.	January, 1922	R. I. Bernath, Wauseon, Ohio
Pa. State Vet. Med. Assn.	Harrisburg, Pa.	January, 1922	R. M. Staley, Philadelphia, Pa.
Philadelphia Vet. Club.	Philadelphia.	4th Tuesday of month.	C. S. Rockwell, 5128 Chestnut, Phila.
San Joaquin Valley V. M. A.	Fresno, Calif.	Nov. 3, 1921	H. B. Winteringham, Fresno, Calif.
Southern Cal. V. M. Assn.	Los Angeles.	3rd Wednesday of month.	J. P. Bushong, Los Angeles.
Southeastern Mich. V. M. A.	Detroit, Mich.	2nd Wednesday, January, April, July, October.	H. P. Hoskins, Box 471, Detroit, Mich.
Utah S. V. M. Assn.	Salt Lake City.	October, each year.	E. A. Bundy, Ogden
U. S. Live Stock San. Assn.	Chicago, Ill.	Nov. 28, 29, 30	T. A. Burnett, Columbus, Ohio
Vet. Assn. of Alberta.	Calgary, Alta.	September, 1921	T. E. LeClaire, E. Calgary.
V. M. Assn. of N. Y. City.	338 E. 26th St.	1st Wednesday of month.	J. E. Crawford, Far Rockaway
Va. S. V. M. Assn.	Richmond.	January 13-14, 1922	W. G. Chrisman, Blacksburg, Va.
Wash. State Col. V. M. A.	Wash. State Coll.	2nd & 4th Tuesday of month	S. Worley, College Sta.
Western Pa. Vet. Club.	Pittsburgh.	3rd Tuesday of month.	Fred Weitzel, Pittsburgh
Wisconsin V. M. Assn.	Madison, Wis.	January, 1922	O. E. Eliason, Madison
York Co. V. M. Soc.	York, Pa.	1st Tuesday March, June,	E. S. Bausticker, York, Pa.

MEAT INSPECTION

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Translation by Earley Vernon Wilcox, A. M., Ph. D., Veterinary Editor Experiment Station Record.

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Dr. Carl Hall, Greensburg, Indiana, died recently at the St. Vincents Hospital, Indianapolis, following an operation for appendicitis. He is survived by a widow, his mother and father.

Dr. Wm. H. McConnell, city veterinarian of Indianapolis, Ind., was recently bitten by a rabid dog that he was examining. He immediately resorted to the Pasteur treatment.

Sixty-four veterinarians passed a recent examination held by the Bureau of Animal Industry in Kentucky for accredited veterinarians.

The Eastern Iowa Association held a very successful and largely attended meeting at Cedar Rapids, recently.

The summer meeting of the Western Michigan Veterinary Medical Association was held at Manhattan Beach, Reeds Lake, Grand Rapids, Michigan. About forty were in attendance. An excellent entertainment program was enjoyed by those present. New members elected at the meeting were: Drs. B. A. Perry of Hastings, and R. C. Rawlings of Caledonia.—O. H. Van Brussell, Sec'y, Wayland, Mich.

Dr. J. G. Blackman died August 25th at his home in Pamona, Calif. Dr. Blackman was an old settler along the California-Mexico border, where he practiced for many years. Failing health two years ago compelled his retirement, and he settled in Pamona.

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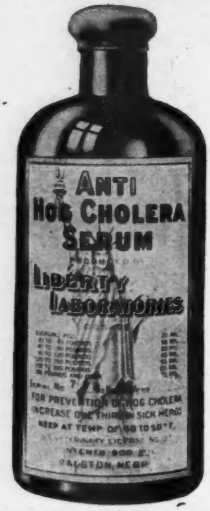

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An examination for appointment as Second Lieutenant, Veterinary Corps, will be held throughout the continental limits of the United States on November 14, 1921, to fill sixteen vacancies.

The candidates must be citizens of the United States, be from 21 to 30 years of age, officers of the Veterinary Reserve Corps, have a satisfactory general education, and be graduates of an acceptable veterinary college, legally authorized to confer the degree of Doctor of Veterinary Medicine, or its equivalent, and which requires students to have covered satisfactorily a four years' high school course, or its academic equivalent, as a minimum entrance requirement, and which maintains this course of instruction covering a period of four years of not less than seven months in each year. Since graduation the applicant must have at least one year's practical experience.

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ONTARIO VETERINARY ASSOCIATION

The forty-second annual meeting of the Ontario Veterinary Association was held at the Ontario veterinary college, August 11 and 12, 1921. Over one hundred veterinarians from different parts of the province were present.

Business matters, election of officers, etc., occupied the whole of the first morning, and addresses, papers, and discussions were on the program for the afternoon and evening.

Standardization of Veterinary Fees, by Capt. I. Dunn of Barre, Ont., brought forth much discussion, and a schedule of fees for members of this association has been presented to the executive committee for consideration. It is hoped that by adopting this schedule greater cooperation will exist among the practitioners in the province.

Dr. A. B. Wickware, of the Biological Laboratories, Ottawa, gave an illustrated address on Diseases of Poultry. He emphasized the economic importance of poultry to Canada and urged veterinarians to pay more attention to this phase of live-stock breeding. He stated that the fowls in Canada were worth $200,000,000, and it was therefore essential to conserve this great industry by safe-guarding the flocks from the ravages of disease. The diseases of chicks were dealt with, and tuberculosis, blackhead, etc., were briefly mentioned.

At the end of the afternoon session, an excellent lunch was served in the assembly hall and great credit is due Drs. Ottewell and Gwatkin for preparing such a satisfying meal.

The first address in the evening was delivered by Dr. C. D. McGilvray, principal of the Ontario veterinary college. He spoke of the Andrew Smith memorial fund, stating that during the past year the sum of $134.55 had been collected for this fund. He appealed to the

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members for further subscriptions. Dr. C. H. Higgins of the Lederle Antitoxin Laboratories, New York, also made a strong appeal for this fund with the result $143.85 was collected at the meeting and $90 more pledged.

Dr. F. Torrance, Veterinary Director General, addressed the meeting on tuberculosis and accredited herd plan. He outlined the fight in progress against tuberculosis which is being made by his department, and drew attention to the number of municipalities availing themselves of government inspection of cows. The number of cows tested under this system for the first four and a quarter months of the present fiscal year greatly exceeds the number tested during the whole of the preceding year. The accredited herd plan is also making great progress. The number of accredited herds in Canada is now twenty-two and five hundred and forty-one are under process of accreditation.

Dr. Robert Barnes, chief inspector, meat and canned foods act gave a very interesting paper on the Inspection of Canned Foods. He pointed out that no profession was so well qualified to inspect the raw material (which, of course, constitutes the principal part of the inspection) as were veterinarians. The numerous difficulties that had been encountered by his department were being overcome, and the inspection was being carried on efficiently and to the entire satisfaction of the canners. This paper brought forth some interesting discussion. The questions asked were promptly answered by Dr. Barnes.

Dr. C. H. Higgins gave an interesting talk on Service. Doctor Higgins is one of the most popular members of the association, and in his address made many timely remarks that were well received.

Both Drs. McGilvray and Higgins spoke of the Canadian Veterinary Record, and pointed out that the united efforts of Canadian veterinarians was necessary in order that the journal might continue to be published. They remarked on the good work being done by Col. Evans (the editor), Dr. Gwatkin, Dr. Fowler, and others. At this meeting twenty-five more subscriptions to the Journal were made.

The meeting on the second day opened with demonstrations in the application of the tuber-

culin tests by Dr. C. D. McGilvray. He thoroughly explained the technic of all the tests and showed reactions in cattle that had been injected previous to the meeting.

Dr. J. F. De Vine, of New York, next gave an instructive talk on Sterility. He stated that the methods employed on this continent were far ahead of those in any other country. The corpus luteum was fully described and its significance explained. Diagnosis of pregnancy was thoroughly outlined from a few weeks after conception up to parturition. Uteruses of cows, both virgin and in various stages of pregnancy were supplied by Drs. D. A. Irvine and C. W. McIntosh, enabling Dr. DeVine to fully illustrate his methods. Dr. DeVine also demonstrated the treatment of sterility in several cows sent in for that purpose.

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The veterinary officers stationed at the Quartermaster's Department, Chicago, including instructors and students in the Army School of Meat and Food Inspection, with Col. Steele of Fort Sheridan, held their annual picnic, October 6th, in Jackson Park, Chicago. Of course, the wives and children were invited and attended.

The afternoon was spent in games and eating principally in the latter, because the supply of picnic lunches seemed inexhaustible. The editor acknowledges the biggest feed of the season.

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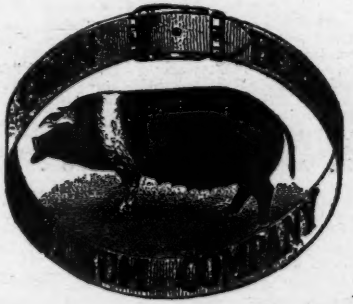

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Some equine surgery was performed by Dr. W. J. R. Fowler of Toronto, and Dr. D. R. Caley of Bracebridge performed cryptorchidectomy and reduced a hernia in a large pig.

Drs. R. A. McIntosh of Oakville and H. E. Batt of Toronto acted as assistants during the clinic.

The officers elected for the ensuing year are: Dr. J. A. Campbell, President, Toronto; Dr. D. R. Caley, Bracebridge, First Vice-President; Dr. T. B. Buckley, Toronto, Second Vice-President; Dr. H. E. Batt, Toronto, Dr. J. Dunn, Barre; Dr. D. A. Irvine, Toronto; Dr. W. A. Thompson, Washago, Executive Committee; Dr. J. S. Glover, Toronto, Secretary-Treasurer and Registrar. J. S. GLOVER, Secretary.
Toronto, Ont.

GEORGIA VETERINARIANS HOLD 15TH ANNUAL CONVENTION

The fifteenth annual meeting of the Georgia Veterinary Association held in Macon, Georgia, September 21 and 22, passes into history as one of the most successful meetings ever held by this association. In spite of the fact that financial conditions in the South have been very discouraging during the past year, a larger number of veterinarians were present than have been in any meeting of the past five years.

The meeting, held at the Hotel Lanier, was called to order on the morning of the 21st by President Dr. B. E. Carlisle, of Montezuma, Georgia, and a welcome on behalf of the city of Macon, was extended to the association by Roger Miller, secretary of the Macon chamber of commerce. This welcome was responded to by Dr. John I. Handley of Atlanta.

The first session of the meeting was devoted to the discussion of the hog cholera question. The first paper, "Parasitic Infestation in Its Relation to Hog Cholera," given by Dr. Guy T. Cole, U. S. inspector in charge of meat inspection at the Swift & Company packing plant at Moultrie, Georgia, was a revelation in that it showed that parasitic infestation of hogs causes more condemnation of hog carcasses than all other diseases combined. Thousands of pounds of pork are condemned in the packing plants; and if conditions seen in a small packing house are indicative of the country generally, millions of dollars are lost annually due to the needless harboring of parasites by the hogs on the farm. A motion was made at this time to give this paper as wide publicity as possible through the press of the state.

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The next paper, "Intra-peritoneal Injection of Hog Cholera Serum Compared with Other Methods of Injection," by Dr. J. H. Coffman, assistant state veterinarian, Atlanta, was a short history of the vaccination of hogs against cholera. This paper brought out the fact that due to the ease of the operation, the absence of abscesses and the readiness with which the serum is absorbed, the intra-peritoneal method of injecting hog cholera serum is far superior to all other methods.

A short review of losses following the serum simultaneous treatment of hogs was given by Dr. D. L. Proctor, Hawkinsville, in his paper "Hog Cholera? If Not, What?" Dr. Proctor reported that the herds under discussion had been treated and re-treated with serum and virus alone and in conjunction with bacterins and, though the ante-mortem symptoms and post-mortem lesions were those usually found in hog cholera, the disease could not be checked. This paper brought out an abundance of opinions as to the cause of these losses and the real identity of the disease.

"Indications and Contra-indications for the Use of Bacterins" was well handled by Dr. J. L. Ruble of Quitman, who showed, by citing cases in his hog practice, that there are conditions in which bacterins are indicated.

The afternoon session of the first day was given over to the discussion of subjects pertaining to general practice. Dr. G. W. Browning, LaGrange, read a paper on "Some Things We Should Not Do in Canine Practice." He pointed out the fact that care should be taken in administering drugs to puppies, and showed that simple remedies were often more effective than poisonous drugs. This paper brought out some interesting discussions along the line of canine practice. Following this paper, Dr. T. F. Abercrombie, secretary of the state board of health, Atlanta, gave a report of the work being done by the state board of health laboratory in the control of rabies in Georgia. The figures given by Dr. Abercrombie showed that rabies is on the increase in this state and as a result of this report, a committee was appointed, consisting of Drs. Bahnsen, Americus; and Burkland, Atlanta; Drs. Richardson and Purcells, Athens, and Dr. E. D. King, Jr., Valdosta, to investigate experiments conducted by the board of health laboratory and if results were satisfactory, to recommend to the general assembly of Georgia at their next meeting, the passage of laws controlling dogs with a view of

lessening the occurrence of this disease.

Following the discussion of this report, Dr. John W. Salter, Dawson, gave an interesting paper on the pathology of and the technic of the Operation Against Roaring in Horses and Mules. Dr. P. W. Hudson, Americus, then related some of his experiences with parturient paresis. This paper brought out a variety of arguments for and against the use of different drugs to be given in connection with the inflation of the udder in treating these cases.

The final paper in this session was given by Dr. E. L. Jarvis of Macon, on the subject of abortion. Dr. Jarvis gave an interesting review of his experiences with this disease in cattle. He considered the use of bacterins very satisfactory in treating herds of cattle infected with contagious abortion. The discussion following this paper was participated in by a number of veterinarians present, and brought out the fact that abortion is present in Georgia, not only among the cattle, but also in herds of hogs.

The evening of the first day was spent around the banquet table. Due to the absence of Dr. M. A. Morris, Dr. Bahnsen acted as toast-master and a memorable evening was enjoyed by all present.

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The morning of the second day was given over to the subjects of municipal meat and milk inspection. Dr. E. D. King, Jr., city meat and milk inspector, Valdosta, in his paper, "Is Public Sentiment a Factor in Establishing Meat and Milk Inspection?" sowed that no public work can be successfully carried out without the support of the public. In his opinion, the public should be educated as thoroughly in the relation of contaminated and diseased milk and meats to the health of a community, as it is in the branches of learning taught in the common school.

"Why Should a Veterinarian be in Charge of Municipal Meat and Milk Inspection?" was well handled by Dr. A. G. G. Richardson, dean of the veterinary division, state college of agriculture, Athens. Dr. Richardson, who for many years was a B. A. I. inspector, showed that the veterinarian is the only man who can control the sanitation of meats and milk from the farm to the consumer. He also showed that no lay inspector can determine the health and condition of the animal or carcass before its products are offered for public consumption, and that few lay inspectors are qualified as sanitary officers.

Dr. R. K. Roberson, milk inspector of Columbus, Georgia, on Dairy Sanitation, gave the points to be considered in conducting a sanitary dairy and the production of wholesome milk. This paper brought out an interesting discussion.

The afternoon session was to have been a demonstration of the combination test for tuberculosis, but as no reactors were found, a clinic held in Dr. Jarvis' hospital was substituted for this part of the program.

The business session closed the meeting. Dr. A. L. Hirleman, U. S. veterinary inspector in charge of co-operative hog cholera and tuberculosis control, Atlanta, was elected president for the coming year, with Dr. A. G. G. Richardson, Athens, vice-president. Dr. Peter F. Bahnsen, Americus, was unanimously re-elected secretary-treasurer. Upon invitation of the chamber of commerce and Drs. Epple and Toliver of Albany, that city was selected as the meeting place of the association for the year 1922. It was voted that the next meeting be held between the fifteenth and thirtieth of September.

P. F. BAHNSEN,
Sec.-Treas.